

RECOIL

GUN LIFESTYLE: GEAR · TECHNOLOGY · SPORT · OUTDOOR · HOME & PERSONAL DEFENSE

TRACKINGPOINT

TAKING AIM AT THE FUTURE OF SHOOTING

PG. 62

NY-LEGAL AR

ARES DEFENSE SCR
PG. 38

MODERN COMBAT PISTOLS
CZ POLYMER OMEGA SERIES
PG. 46

CENTURY ARMS C93
AN AFFORDABLE HK CLONE THAT WORKS
PG. 74

BATTERING RAM

PG. 28



> Kitanica, ESS, TrackingPoint, BLACKHAWK!, Pro-Tech Knives, 3M Peltor, Olight, Griffon Industries, Outdoor Research, Apple

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ISSUE 16

MOSSBERG AND MAGPUL: SOULMATES
LONG-RANGE HANDGUN ACCURACY
WEAPON OUTFITTERS PICTORIAL
SHTF: CAN MODERN SUVs HACK IT?
FAXON REDUX
ZEROED IN: JIM SMITH
PT: THE MISSING LINKS
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RECOIL

ISSUE 16

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FIREARM SAFETY IS TOP PRIORITY

RECOIL reminds you to be safe and always obey firearms safety rules:

1. Treat every gun as if it were loaded.
 2. Always keep the gun pointed in a safe direction.
 3. Keep your finger off the trigger until ready to fire.
 4. Be aware of your target's foreground and background.
- All contents in RECOIL Magazine are professionally photographed in a closed studio or range. Do not attempt to recreate any photographs depicted in this magazine.

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PHASE 5

WEAPON SYSTEMS INC.

A NEW BREED
OF PISTOL



ATLASONE™ FEATURES

- PHASE 5 AMBIDEXTROUS BATTLE LATCH/CHARGING HANDLE ASSEMBLY (ABL/CHA™)
- PHASE 5 BILLET UPPER RECEIVER (BUR™)
- PHASE 5 LO-PRO SLOPE NOSE QUAD RAIL (LPSN7.5™)
- PHASE 5 7.5" 41V50 BARREL (5.56 NATO) WITH ELECTROLESS NICKEL M4 EXTENSION
- PHASE 5 PISTOL BUFFER TUBE COMPLETE ASSEMBLY (PBT-CA™)
- PHASE 5 EXTENDED BOLT RELEASE V2 (EBRV2™)
- PHASE 5 ATLASONE™ BILLET LOWER RECEIVER WITH BUILT-IN WINTER TRIGGER GUARD (WTG)
- PHASE 5 REVOLVING SLING ATTACHMENT SOLUTION (REVO-SAS™)
- PHASE 5 SINGLE POINT BUNGEE SLING WITH MOLLE (BLACK)
- PHASE 5 ELECTROLESS BOLT CARRIER GROUP (BCG-EM)

- A.R.M.S.® 71L FLIP-UP BACKUP SIGHTS
- MFT-C2T ENHANCED PISTOL GRIP
- CMC® DROP-IN TRIGGER GROUP SINGLE STAGE 3 S/LB CURVED
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Length: 24"	Weight: 56-4.5oz	5.56 NATO 200 FPM	THE ATLAS ONE
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ON THE COVER



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KENTON/ISTOCKPHOTO.COM

1 JACKET

MAKE:
Kitanica
MODEL:
Mark IV
MSRP:
\$597
URL:
www.kitanica.net

2 PANTS

MAKE:
Kitanica
MODEL:
Backcountry Pants
(Kryptek Typhon)
MSRP:
\$129
URL:
www.kitanica.net

3 GLOVES

MAKE:
Outdoor Research
MODEL:
Piledriver Gloves
MSRP:
\$70
URL:
military.outdoorresearch.com

4 WEAPON SYSTEM

MAKE:
Tracking Point
MODEL:
Precision-Guided
Semi-Auto 7.62
MSRP:
\$14,995
URL:
www.tracking-point.com

OFF THE COVER

5 BELT

MAKE:
Griffon Industries
MODEL:
Ghost EDC Belt
MSRP:
\$100
URL:
www.griffonindustries.com

6 EAR PROTECTION

MAKE:
3M Peltor
MODEL:
WS 100
MSRP:
\$499
URL:
www.shop3m.com

7 EYE PROTECTION

MAKE:
ESS
MODEL:
Credence
MSRP:
\$90
URL:
www.esseyepro.com

8 KNIFE

MAKE:
Pro-Tech Knives
MODEL:
TR-3 X1
MSRP:
\$250
URL:
www.protechknives.com

9 FOOTWEAR

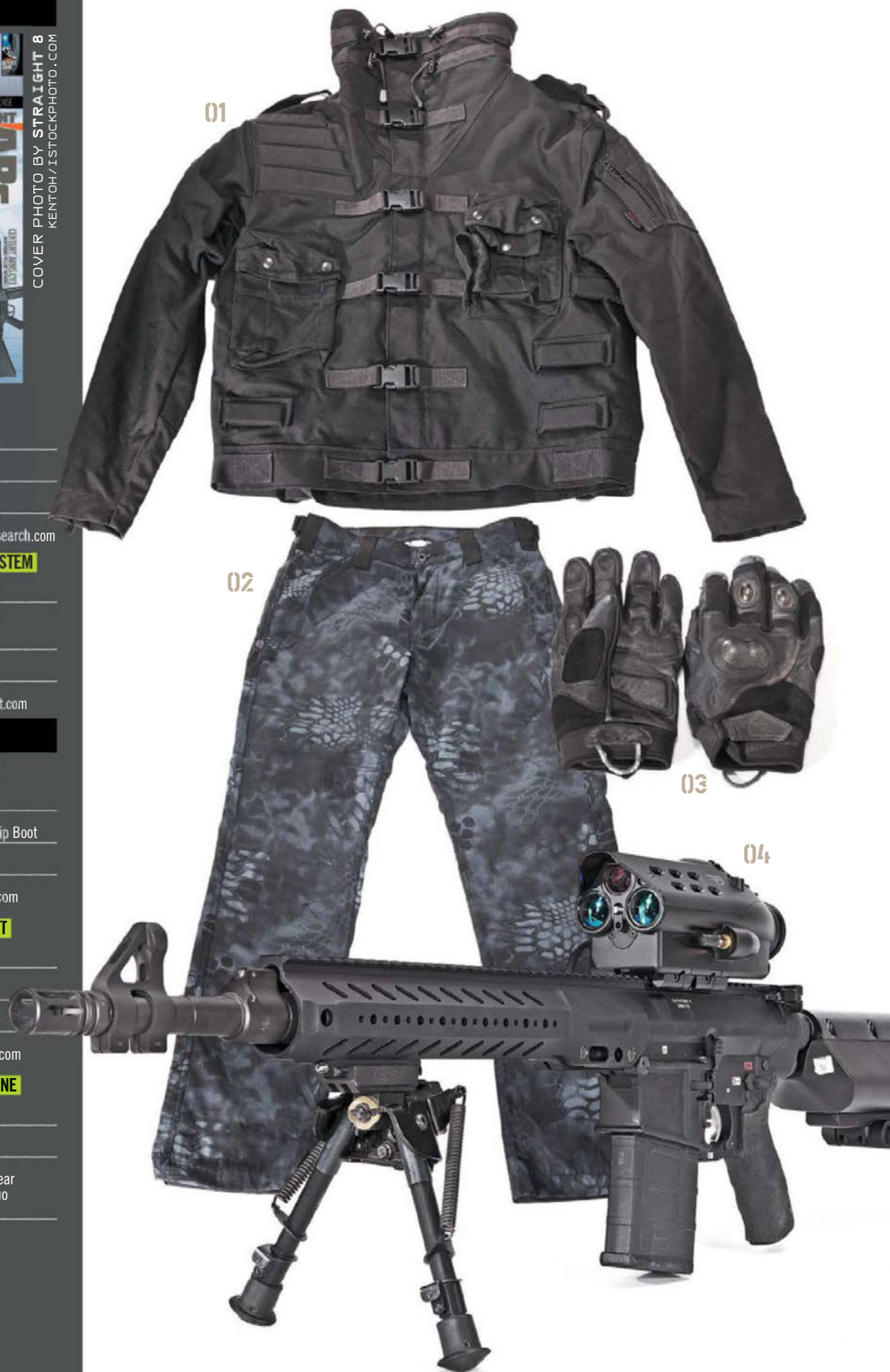
MAKE:
BLACKHAWK!
MODEL:
Ultra Light Side Zip Boot
MSRP:
\$175
URL:
www.blackhawk.com

10 FLASHLIGHT

MAKE:
Olight
MODEL:
S15 Baton
MSRP:
\$50
URL:
www.olightworld.com

11 SMARTPHONE

MAKE:
Apple
MODEL:
iPhone 6 (64GB)
MSRP:
\$299 (with two-year
contract), \$749 (no
contract)
URL:
www.apple.com





05



07



08



10



09



06



11

BY IAIN HARRISON
PHOTO BY KENDA LENSEIGNE

Those of us old enough to remember the dark days of the 1994 Assault Weapons Ban (AWB) might get a sense of déjà vu while reading Pete Palma's review of the Ares Defense SCR carbine in this issue. Although subsequently determined by none other than the Department of Justice itself to be as useful as tits on a fish, the AWB was nonetheless championed by toxic little fascists such as California Senator Dianne Feinstein as an effective and worthwhile measure to combat armed crime.

By creating the term "assault weapon" out of whole cloth and then coming up with their own definition thereof, the law's creators did nothing but display both their ignorance of the subject and disdain for the rights of their constituents. The idea that one particular set of semi-automatic firearms was especially dangerous and therefore subject to prohibition, while another that was functionally identical garnered the legislative stamp of approval led one to believe that they were unfamiliar with the phrase "arbitrary and capricious."

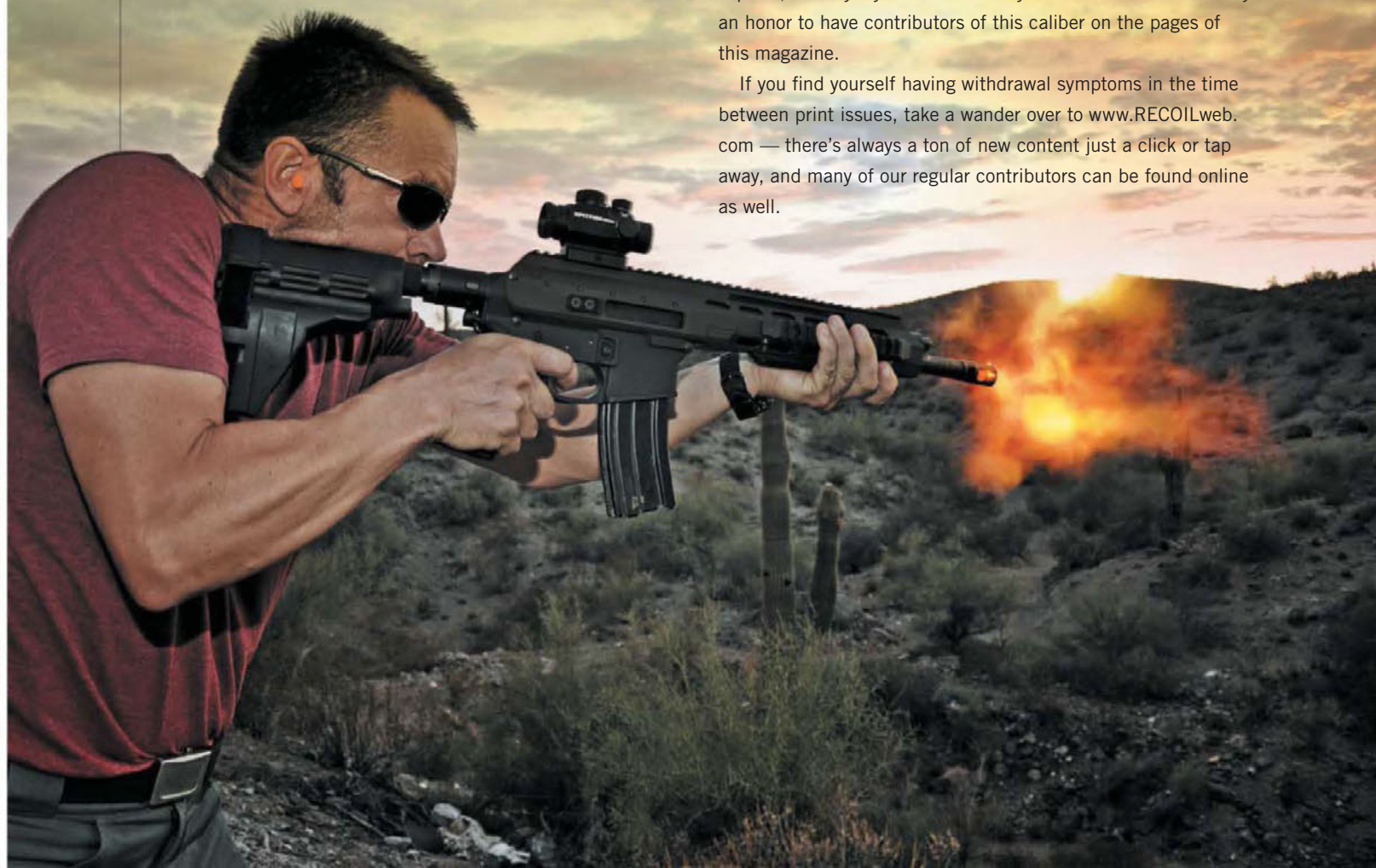
In the decade the ban was in force, gun owners complied with the letter of the law — we are, after all, by nature a law-abiding bunch — all the while inventing creative means to ensure access to useful firearms was curtailed as little as possible. Think that a bayonet lug and flash-hider makes a carbine more dangerous in the hands of an upstanding citizen?

No problem, we'll just remove the first item and swap out the second for a muzzle brake. The same kind of contempt for the contemptible no doubt drove Ares to dust off the design for its 50-state-legal semi-auto rifle, following passage of the SAFE Act in New York. Although the company is to be commended for an ingenious work-around, the fact remains that we as gun owners shouldn't have to resort to this. We don't need hypocrites like Andrew Cuomo telling us how many rounds we're allowed to load in a magazine, or what kind of politically correct stock is OK to install on our rifles.

It's down to us as individuals to ensure that the kind of duplicity, ignorance, and cowardice shown by politicians in New York, California, or anywhere else is rewarded the same way voters in Colorado showed their appreciation for that state's recent magazine ban. Vote the bums out.

Elsewhere in this issue we have the privilege of chatting with Jim Smith, who will no doubt be familiar to students of the conflict in Somalia. Another couple of SFOD-D guys, the inimitable Pat "Mac" McNamara and the ferociously competent Mike Pannone return to both beat your ass in the gym and work on your handgun fundamentals, while Eric Lund explains exactly why you should push the limits of your pistol skills to be able to make hits at extended ranges. These are the kinds of subjects, experts, and style you won't find anywhere else — and it's truly an honor to have contributors of this caliber on the pages of this magazine.

If you find yourself having withdrawal symptoms in the time between print issues, take a wander over to www.RECOILweb.com — there's always a ton of new content just a click or tap away, and many of our regular contributors can be found online as well.





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1

Brainchild of Pete Palma (RECOIL contributor, former U.S. Marine scout sniper, and all-around wild man), MS Clean is a magazine-shaped cleaning kit that provides a robust way to carry steel cleaning rods and lube without bending or breaking them. Although the kit is too big to fit into a rifle's magwell, we recommend stashing it away from your ready-use mags, just to be on the safe side. According to its website, "If you do manage to find yourself frantically inserting an MS Clean into your rifle, you may want to consider that we purposely engineered a level of natural selection into our product."

MAKE:

MS Clean

MODEL:

MS Clean Kit

MSRP:

\$40

URL:

www.msckitkits.com

2

The nastiest part of rolling your own ammo is cleaning fired cases. Conventional vibratory case cleaners rely on corn cob or walnut media that A) is hard to find, B) is messy to handle, and C) generates lead-laden dust every time you pour it out. Frankford Arsenal's rotary tumbler uses water and detergent to produce sparkly clean brass, without the mess and background noise of a vibe. We tested it with 1,000 5.56mm cases, and they came out shiny after an hour of rolling around in a gallon of H₂O and a jigger of Simple Green. Add the included stainless-steel media and the primer pockets get the once-over, too. We're keeping our vibratory cleaner for polishing case lube off of finished rounds, but were so impressed with this one that we've switched over to it exclusively for initial case prep.

MAKE:

Frankford Arsenal

MODEL:

Platinum Series Rotary Tumbler 7L

MSRP:

\$240

URL:

www.btibrands.com

3

According to Law Tactical, its AR Folding Stock Adapter Gen III is the only such adapter compatible with all AR-platform rifles, be they gas-piston or direct-impingement systems. It fits on any A2, carbine, Mil-spec, or commercial buffer tube and stock. The adapter's lowered hinge eliminates interference with the charging handle and its tension is adjustable to hold the buttstock in the folded position. Plus, it's easy to use: to fold, hit the one-button release; to engage, just unfold. It's made in the USA from CNC-machined 4140 tool steel with a Cerakote finish.

MAKE:

Law Tactical LLC

MODEL:

AR Folding Stock Adapter Gen III

MSRP:

\$230

URL:

www.lawtactical.com

4

The BALIOS-lite is the ideal upper-and-lower-receiver set for those obsessed with saving weight. Made by 2A Armament from 7075-T6 plate aluminum, our sample set weighed in at a lean 12.5 ounces. It has a pocketed design, lightened trigger guard, and no forward assist to help trim the fat. Also, the lower features a flared magwell for quicker reloading. Bead-blasted and hard-coat anodized black, the BALIOS-lite is interchangeable with forged and standard BALIOS sets. Made in the USA.

MAKE:

2A Armament

MODEL:

BALIOS-lite

MSRP:

\$486

URL:

www.2a-arms.com

5

An updated version of the original Magpul grips, the MOE 1911 Grip Panels with TSP texture offer a more aggressive surface to allow for greater control of your handgun in all environments. They're made of heavy-duty reinforced polymer in the USA, fit full-sized-framed 1911s with standard screw bushings, and feature a deep magazine release cut-out and moderate bevel at the bottom.

MAKE:

Magpul

MODEL:

MOE 1911 Grip Panels, TSP Textured

MSRP:

\$20

URL:

store.magpul.com



6

Big enough for a couple of compact handguns (or one full-size with extended magazine and light), the GunBox gives you a secure yet rapidly accessible storage option for beside your bed or inside your vehicle. Activated with either an RFID-enabled bracelet or your fingerprint, the safe ships with a spare chip so you can embed it into your watch strap, should you rather not look like an extra from a low-budget sci-fi flick.

MAKE:
The GunBox LLC
MODEL:
The GunBox – RF + Biometric
MSRP:
\$299
URL:
www.thegunbox.com

7

With winter sure to whiteout windshields in most parts of the country, one solution might be the Lake Effect Ice Scraper from famed knife-maker KA-BAR. Made in the USA, this handy device can quickly clear ice off your windows in no time. And because it's made of Grivory, a thermoplastic synthetic resin, the ice scraper is weather resistant and pretty tough. It also makes for a decent improvised self-defense weapon.

MAKE:
KA-BAR Knives Inc.
MODEL:
Lake Effect Ice Scraper
MSRP:
\$7
URL:
www.kabar.com

8

Unless you've been in a combat zone, you have no idea what a harrowing ordeal it can be. *Level Zero Heroes* brings you as close to the action as a book can, detailing the true story of the brave men of U.S. Marine Special Operations Team 8222 assigned to take out a Taliban stronghold in a remote part of Afghanistan. It's honest, authentic, and well-paced — no surprise considering it's co-written by a former team member, Michael Golembesky (collaborating with John R. Bruning). He beautifully pays tribute to the men he served with while providing a stark picture of the War on Terror.

PUBLISHER:
St. Martin's Press
TITLE:
Level Zero Heroes: The Story of U.S. Marine Special Operations in Bala Murghab, Afghanistan
MSRP:
\$27
URL:
www.levelzeroheroes.com

9

The Mini Pistol Range Bag by Defcon Gear is a slimmed-down version of a typical range pack, but still fits everything you need for a long day at the range. On one side there are pouches for up to eight double-stack magazines. On the other, there are three compartments to hold everything from a phone and keys to lube and cleaning swabs. And the main section has two padded sleeves that can hold a couple of full-sized handguns. You can carry it briefcase style or use the removable and adjustable shoulder strap.

MAKE:
Defcon Gear
MODEL:
Mini Pistol Range Bag
MSRP:
\$40
URL:
www.defcongear.com

10

There's nothing sexier than a *Magnum P.I.* mustache, except perhaps a patriotic *Magnum P.I.* mustache. The 100-percent-cotton Mustache T-Shirt from Sorinex delivers just that with a curly 'stache made up of the Stars and Stripes on the front and the Sorinex mascot on the back above the words "Physically Cultured." For those who can't tell apart a seated row from a cable pull-down, Sorinex makes high-quality institutional-grade exercise equipment for pro sports teams, fitness facilities, and various elements of the U.S. special operation forces.

MAKE:
Sorinex Exercise Equipment
MODEL:
Mustache T-Shirt
MSRP:
\$19
URL:
store.sorinex.com



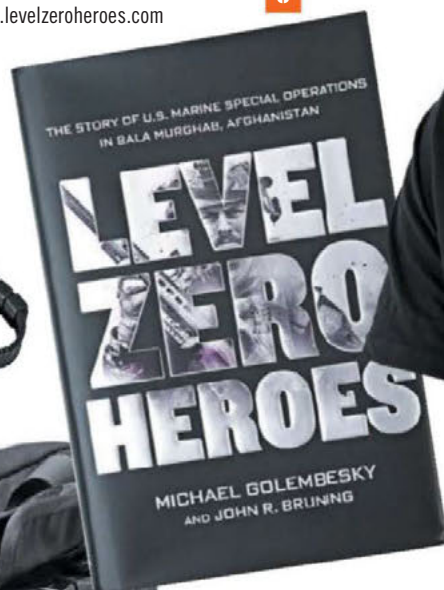
6



7



9



8



10

11

Designed in collaboration with Chris Costa of Costa Ludus, the SwitchBack Flashlight Ring aims to let you use a flashlight while still maintaining a two-handed grip on a pistol or long-gun. It can be drawn from your pocket and employed using most traditional low-light techniques. Compatible with SureFire's EB1 Backup or EB2 Backup with tactical tailcap, but not with clicking or shrouded tailcaps. A larger version is also available to fit other models. Made of matte black polymer in the USA. Flashlight not included.

MAKE:
Thyrm LLC
MODEL:
SwitchBack Flashlight Ring
MSRP:
\$20
URL:
www.thyrm.com



11

12

Founded by Michael Burke, a military service-disabled veteran, GatorSkins makes all kinds of innovative cold-weather apparel knitted from microfibers that were developed by DuPont researchers. The clothes — including these thermal pants — retain heat three times better than wool yet are water repellent, windproof, stretchable, and breathable. While the men's pants are available only in charcoal, the women's version gets an extra color option and can be had in either charcoal or pink.

MAKE:
GatorSkins
MODEL:
Charcoal Thermal Pants
MSRP:
\$70
URL:
www.gator-skins.com



12

13

If you use knives on a regular basis, but you're not a knife nut, learning the best way to sharpen a blade can be confusing process. Wet stones, strops, 12-degree-versus-25-degree angles — it can all be a bit much. This knife sharpener from EdgeCraft takes all the guess work out. Using 100-percent diamond abrasives and a two-stage system, this convenient device creates an arch-shaped, razor-sharp edge in no time. It's safe, easy to use, and ambidextrous. Engineered and assembled in the USA.

MAKE:
EdgeCraft
MODEL:
Tactical Diamond Hone Manual Knife Sharpener
MSRP:
\$30
URL:
www.edgecraft.com



13

14

There are smartphones, smartcars, and now so-called "smart mags." The TTC-MAG R6 magazine from Maklarbak USA locks the bolt open early when one round remains. You then can drop the bolt on your last 5.56mm round to chamber it, release your empty mag, and insert a fresh mag (or you can treat it as a standard emergency reload and just drop the mag with one round left). Maklarbak says this feature lowers anxiety and increases safety by providing you a single round to fire, if needed, as you make a speed reload. This is a definite change in time-worn procedures, so think carefully about whether you want to adopt this approach. Each 31-round magazine is about 7 ounces and made of durable polymers.

MAKE:
Maklarbak USA
MODEL:
TTC-MAG R6
MSRP:
\$22
URL:
www.maklarbak-usa.com



14



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PARTS
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IMPERIAL WAR MUSEUM

THE LONDON INSTITUTION CHRONICLES THE HUMAN ELEMENT
AND THE TECHNICAL ADVANCEMENTS OF WARFARE FROM WWI TO NOW

BY IAIN HARRISON

PHOTOGRAPHY BY KENDA LENSEIGNE



London's Imperial War Museum (IWM) was founded in 1917 and currently occupies the site of a former insane asylum. Its mission was to document the then-ongoing Great War, so it was perhaps inevitable and appropriate that at the centenary of the commencement of hostilities the museum would dedicate a huge amount of time and money to commemorate the sacrifices of both the armed forces and civilian population who were involved.

Following a six-month-long renovation, the museum reopened its doors on July 16, 2014, and has seen record attendance ever since. Although the WWI exhibit has received the most coverage, the IWM's four levels cover conflicts from the early 20th century through to the present-day wars in Afghanistan and Iraq. As the visitor approaches the museum's entrance, he or she is greeted by a pair of 15-inch naval guns, the largest ever to be fitted to a Royal Navy warship. Inside, a huge

atrium displays "Witnesses to War," a collection of nine objects ranging from a Harrier suspended from the ceiling, to V1 and V2 rockets, to a T34 tank.

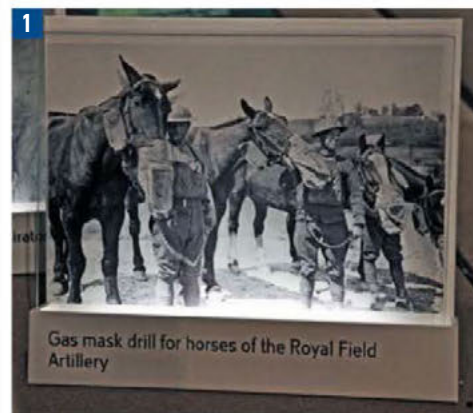
Downstairs, the WWI exhibit leads the visitor through a chronological chain of events leading up to the outbreak of conflict and the hurried preparations to send 80,000 troops to defend France and Belgium from the German advance. As you wander through exhibits detailing the equipment and weapons used by troops, efforts made by the civilian population to support their fighting men are documented on the opposite side of the aisle. Multimedia displays are dotted throughout the exhibit, many of which utilize unique footage and recordings of the times, bringing to life the privations of ordinary people swept up in a global catastrophe. The museum's extensive collection of original photographs, letters, and mementos was used to provide depth to the experience; some of

1. Chemical weapons saw their battlefield debut in 1915, leading to the development of countermeasures for both men and horses.

2. British infantrymen enjoying a hot meal. Note action covers on rifles to keep out mud. Image courtesy of IWM.

3. Quick Firing 18 pounder was the mainstay of British field artillery, remaining in service until 1942.

the communications from the front are horrific in their understated descriptions of trench life — and death.





1

1. Trench clubs started out as improvised weapons, but later became an issued item. Note Stokes 3 inch mortar — its 81mm bore diameter is still employed in light mortars today.



2

2. The sniper's art enjoyed a renaissance in the trenches with both sides developing equipment and training programs for their employment. Hand-painted British ghillie suit stands next to scoped K98.

3. Uniforms, web gear and weapons from all major combatant nations are displayed alongside each other, together with letters from soldiers to their loved ones.

4. Armor, long since discarded following the adoption of the centerfire cartridge, made a comeback to protect forward troops from shell splinters.

used as an observation post. Machine guns from both sides are on display, including one Maxim with both a patched-up bullet hole in the water jacket from one firefight and a separate gouge from a different scrap. Given the volume of fire these MGs were tasked with delivering, they were no doubt witnesses to some of the most intense battles of the period.

Air power and armor saw their debut on the muddy wasteland of northern France and both are represented here in a display that incorporates a Sopwith Camel and Mark V tank above a recreation of a fighting trench, complete with sound and light displays.

Nearby, an exhibit details some of the advances spawned by the conflict, such as secure comms and instantaneous artillery fuses, which still have modern counterparts on today's battlefield. As the visitor progresses through exhibits from 1914 through to the conflict's close in 1918, the political aspect of the war is also covered — and in it you can see the seeds of subsequent conflagrations being sown, even as this one is being fought. The rise of the Third Reich is portrayed as inevitable, given the

somewhat inconclusive nature of the armistice and reparations imposed by it.

The resulting second World War is documented on the museum's second floor, with detailed exhibits covering equipment and campaigns ranging



3



4

WEAPONS OF WAR

Innovations in firearms technology are shown alongside weapons from another age. The display case of trench clubs — both improvised and issued — harkens back to medieval times and illustrates the brutality of close-quarter trench warfare. An original Brit sniper's hand-painted ghillie suit is accompanied by the rifle of his German counterpart, a G98 with Hensoldt scope in a QD mount, which stands near a hollowed-out tree trunk

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1. British 9.2 inch "Mother" howitzer was the main counter-battery artillery of commonwealth troops and could lob a 290 pound HE shell almost 8 miles.

from the Dunkirk evacuation to final victory in Berlin and the dawn of the atomic age — there's an original A-bomb casing donated by Los Alamos on show. It is here, however, that the museum tries to be a little too clever in its features, with large infographics tied to each display standing by themselves at the beginning of each large layout. As a result, if you see something in the display that piques your interest or needs further explanation, you're forced to swim against the tide of other visitors to consult the board — fine if there are few people in the museum, but a royal pain when the building is packed, as it is on most days.

HONOR AND BRAVERY

This being a very British museum, there are, of course, exhibits that display recent conflicts fought on British soil, such as The Troubles in Northern Ireland, which ties directly to the WWI galleries and their treatment of the 1916 Easter Rebellion. The U.K.'s unofficial war with Argentina over the latter's invasion of the Falkland Islands is covered in some detail, and space is also given to the British involvement in Iraq and Afghanistan. Approximately half of the third floor is given over to a poignant and moving exhibit detailing the Holocaust, featuring items recovered from the

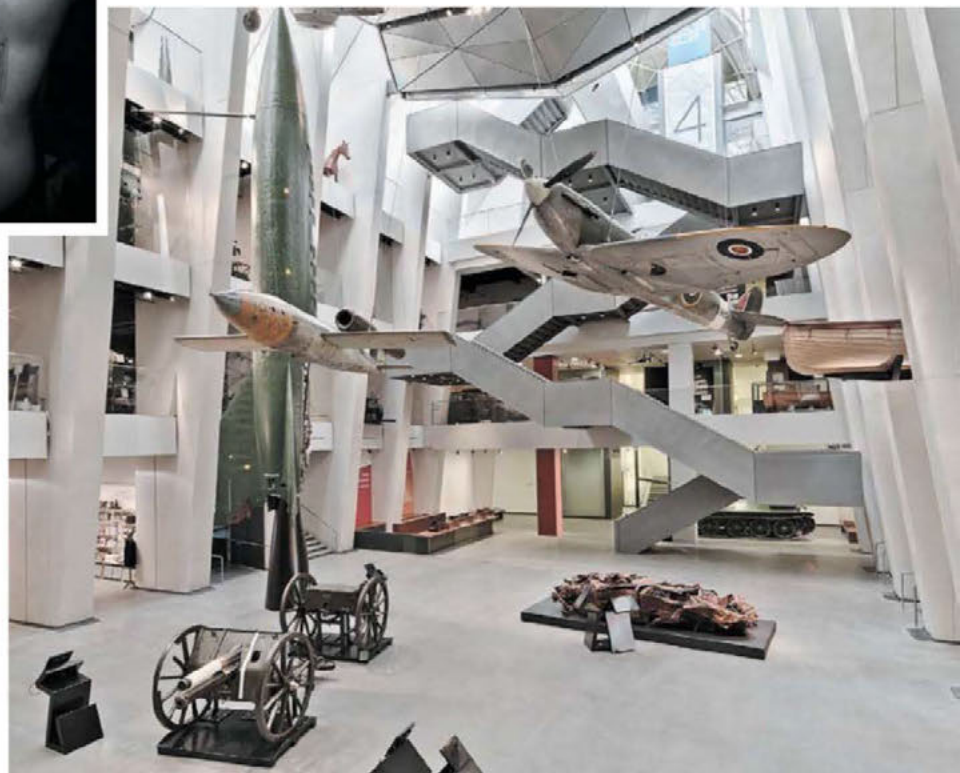
camps at Auschwitz and Dachau.

On the top floor, largely tucked away and unadvertised is a large room dedicated to recipients of the Victoria Cross. Awarded using much the same criteria as the Medal of Honor in the United

States, each medal is cast from bronze recovered from melted-down Russian cannons that were captured during the Crimean War. It is the preeminent honor



2. Private Johnson Beharry is one of only nine living recipients of the Victoria Cross. He was awarded the medal for twice saving his comrades in separate ambushes, the second of which resulted in severe injury due to an RPG round impacting six inches from his head. Image courtesy of IWM.



IMPERIAL WAR MUSEUM

bestowed upon any British or Commonwealth soldier of any rank who has performed acts of valor "in the face of the enemy." Since 1857, only 1,357 have been awarded. Acts of heroism that resulted in the medal's issue are condensed into a few scant sentences in each display — despite their brevity, they give enough insight to the circumstances to leave the reader humbled and awed by the recipients' bravery.

The Imperial War Museum isn't a firearms museum. It's much more wide-ranging and varied than that, covering all aspects of warfare over the last century and how it has affected human history, from politics to consumer goods. If you ever find yourself in London, it's well worth the time to visit. Though be warned — set aside at least four hours of your day, as once inside, time seems to slip by at very rapid pace. ■

IMPERIAL WAR MUSEUM, LONDON

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TIMES: Open daily from 10 a.m. to 6 p.m.

ADMISSION: Free

URL: www.iwm.org.uk

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SPIKE'S TACTICAL'S CONTEMPORARY
TAKE ON A CLASSIC DODGE

BY JOHN SCHWARTZE
PHOTOGRAPHY BY Q CONCEPTS



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Having a vehicle to promote your business is never a bad idea. However, it seems that most promotional cars or trucks are all show and no business. Typically they're nothing more than some blinged-out, lifted pickup with wild graphics and tinted windows that the owner uses to drive to nightclubs so he can get out and high-five his "yes" crowd. In other words, they proudly represent their company by driving something that looks like *Pimp My Ride* threw up on it.

For those of you familiar with Spike's Tactical and its products, you'll

know the company is a no-nonsense brand with a fighting spirit and Second Amendment verbiage pumping through its veins. So when Spike himself was going to invest in a truck to tout his namesake business, we knew that any pretentious B.S. would take a backseat to practicality and style...literally. After all, how many trucks do you see out there with the bed removed for a 360-degree ring-mounted minigun? We thought so.

So how did all this come to pass? Rob Fife of Gunner Fabrications had become friends with Spike Register

(owner of Spike's Tactical) not only through being a customer, but also a fellow gearhead and gun enthusiast. After bumping into each other at SEMA and the SHOT Show, Rob continually hit up Spike about creating a promotional truck for him that'd do his company's mission statement justice on four wheels. Rob sold Spike on the idea of doing a modern interpretation of the old Dodge Power Wagons and Carryalls popular in the '40s and '50s. If you're unfamiliar with what these look like, take some time to Google them. They're definitely fierce-looking trucks and way





1 EXO-SKELETON

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Custom
URL:
www.gunnerfabrication.com

2 TOP LIGHT BAR

MAKE:
Rigid Industries
MODEL:
50-inch
URL:
www.rigidindustries.com

3 CENTER LIGHT BAR

MAKE:
Rigid Industries
MODEL:
20-inch
URL:
www.rigidindustries.com

4 LOWER LIGHTS

MAKE:
Rigid Industries
MODEL:
12-inch dual-stack
URL:
www.rigidindustries.com

5 HEADLIGHTS

MAKE:
Recon Accessories
MODEL:
Smoked Projector Headlights
URL:
www.gorecon.com

6 WINCH

MAKE:
Smittybilt
MODEL:
XRC12 10,000-lb
URL:
www.smittybilt.com

7 WHEELS

MAKE:
Stazworks
MODEL:
Cheyenne w/double bead lock
URL:
www.stazworks.com

8 TIRES

MAKE:
Toyo
MODEL:
MT 40/15.5R20
URL:
www.toyotires.com

9 STORAGE COMPARTMENTS

MAKE:
Custom
URL:
www.gunnerfabrication.com



more off-road capable than their Ford and Chevy counterparts of the day.

The platform they ultimately agreed on was a Cummins-diesel-powered 2013 Dodge 3500. Spike bought the truck new and had it delivered to a dealership in Texas near Rob's shop and off they went. Spike essentially gave Rob carte blanche on the theme for it. Other than knowing he wanted a machinegun on the back and some Rigid lights, it was essentially a blank canvas to strike a balance between cool and killer. Since Spike's Tactical offers a lower called the Hellbreaker with engraving reminiscent of the A10 nose art — and Rob is also a fan of the aircraft — it was a natural choice to go with a Thunderbolt-themed truck.



Spike wanted a 40-inch tire, and Rob likes to keep things low-slung, so it was tricky to find a way to incorporate both. A 3.5-inch long-arm Icon Suspension coilover replacement up front helps stabilize things, given the increased wheel size. Rob cut about 6 inches out of where the fenders were and added flares back on. The corners of the cab were also sliced into and replated to help with clearance issues. The tubing on the front was all custom made to protect the engine, and also folds down to be able to access it or serve as a nifty cowcatcher (or insurgent plow).

The truck was vinyl-wrapped in red, gray, and black to give it some distinctive menace instead of going with a predictable olive drab green paintjob. Rigid lights adorn the front and sides and a siren also provides some additional "out of the way, dumbass" decibels. Custom lockers were built into the sides and back to house some ARs and other goodies. The ring mount for the Vietnam-era minigun is an M66 unit off a 5-ton military truck, circa 1986.



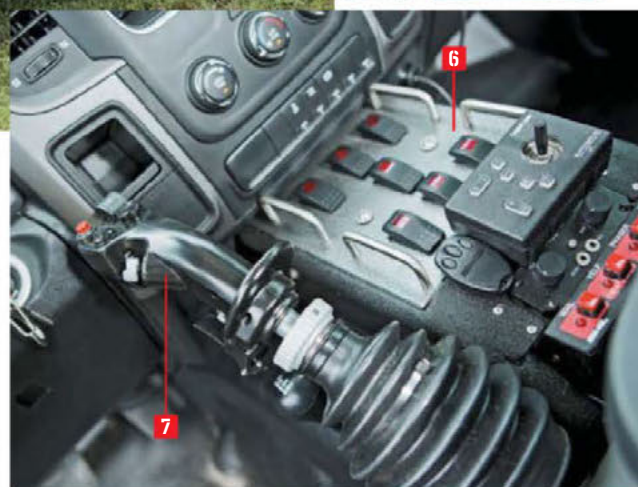
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MODEL:
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URL:
www.gunnerfabrication.com

7 SHIFTER/CONTROLLER

MAKE:
A10 Thunderbolt

8 RIFLE

MAKE:
Spike's Tactical
MODEL:
ST Compressor SBR - 300BLK w/MRS-2 Suppressor, Spike's Tactical billet micro sights, and Black Spider M0129 micro red dot
URL:
www.spikestactical.com

The original 52-gallon gas tank was exchanged for a smaller 32-gallon cell in the rear to accommodate the platform that sits where the bed once was. It's all protected by a custom-made ¼-inch skidplate. Running boards were added to the back and flushed out with rear hangers. The hitch assembly was moved to the outside so it can haul a fifth wheel and the bed could serve as a platform for a side-by-side if need be. Stainless hardware and aluminum on the deck plates helps keep everything corrosion resistant.

Inside this beast, things continue to get interesting. An A10 control stick operates the airhorn, forward-facing lights, and siren — and Spike can even toggle through the gears with it since the shift linkage was moved from the column to the center. A FLIR thermal camera system sits on top of

the cab and complements the night vision accouterments Spike has inside the truck. Mastercraft Baja RS seats reside in place of the originals and straddle the custom switch panel for the lights. A GPS monitor and FLIR monitor sit in front of the passenger, and everyone, including the gunner, can communicate via a Rugged Radios RRP660 intercom with Vox operations and iPhone quick-connect.

This truck has already been on some long treks, and we think it's a pretty healthy interpretation of a vintage battlefield hauler. Oh, and you may also see it sporting a paddleboard on the custom-made roof rack. After all, warfare often calls for watersports intermissions. Don't laugh — Robert Duvall showed us this is in fact a practical activity to celebrate successful strafing runs. ■



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UNUSUAL SUSPECTS

TRAINING KNIVES

BY PATRICK VUONG

The difference between carrying a firearm and knowing how to use it is about as stark as the classiness level between Frank Sinatra and Justin Bieber. The same can be said about a knife. Just because you carry a blade every day doesn't mean you'll be able to use it effectively — let alone disarm a bad guy with a shank. Enter the training knife.

A blunt blade lets you practice drawing,

sparring, and self-defense drills with relative safety, but at realistic, high speeds. The amount of times your gut, neck, and arms get tagged with such a training tool will leave you more enlightened and your underwear a little bit moist. (Just as you would at the range, don't forget to wear eye protection while training.)

But, keep in mind not all training knives are made equal. A flimsy rubber model doesn't

provide a lifelike threat for the defender. A fixed wooden trainer can't realistically simulate a folding knife drawn from your pocket. So, in this edition of "Unusual Suspects," we've compiled some quality training knives of various types — with the key being that they're all replicas of "sharps." That means you can practice safely with these trainers then carry the live-blade versions confidently wherever you go.

TURN TO PAGE 36 FOR MORE DETAILS ON EACH KNIFE.

1 MAKE:
Columbia River Knife
& Tool

MODEL:
FE9 Training Knife

OAL:
14.25 inches

BLADE LENGTH:
9 inches

BLADE MATERIAL:
Thermoplastic rubber

WEIGHT:
4.8 ounces

MSRP:
\$15

URL:
www.crkt.com

2 MAKE:
Columbia River Knife
& Tool

MODEL:
Hissatsu Trainer Aluminum
Blade

OAL:
12.25 inches

BLADE LENGTH:
7.13 inches

BLADE MATERIAL:
6061 aluminum

WEIGHT:
4.1 ounces

MSRP:
\$70

URL:
www.crkt.com

3 MAKE:
Cold Steel

MODEL:
Rubber Trainer (Recon
Tanto)

OAL:
11.75 inches

BLADE LENGTH:
7 inches

BLADE MATERIAL:
Santoprene rubber

WEIGHT:
3.1 ounces

MSRP:
\$11

URL:
www.coldsteel.com

4 MAKE:
Spyderco

MODEL:
P'kal Trainer

OAL:
7.35 inches

BLADE LENGTH:
2.95 inches

BLADE MATERIAL:
440C stainless steel

WEIGHT:
3.7 ounces

MSRP:
\$280

URL:
www.spyderco.com

5 MAKE:
Spyderco

MODEL:
Delica 4 Trainer

OAL:
7 inches

BLADE LENGTH:
2.75 inches

BLADE MATERIAL:
AUS-6 stainless steel

WEIGHT:
2.6 ounces

MSRP:
\$110

URL:
www.spyderco.com

6 MAKE:
Emerson Knives

MODEL:
Karambit Trainer

OAL:
6.8 inches

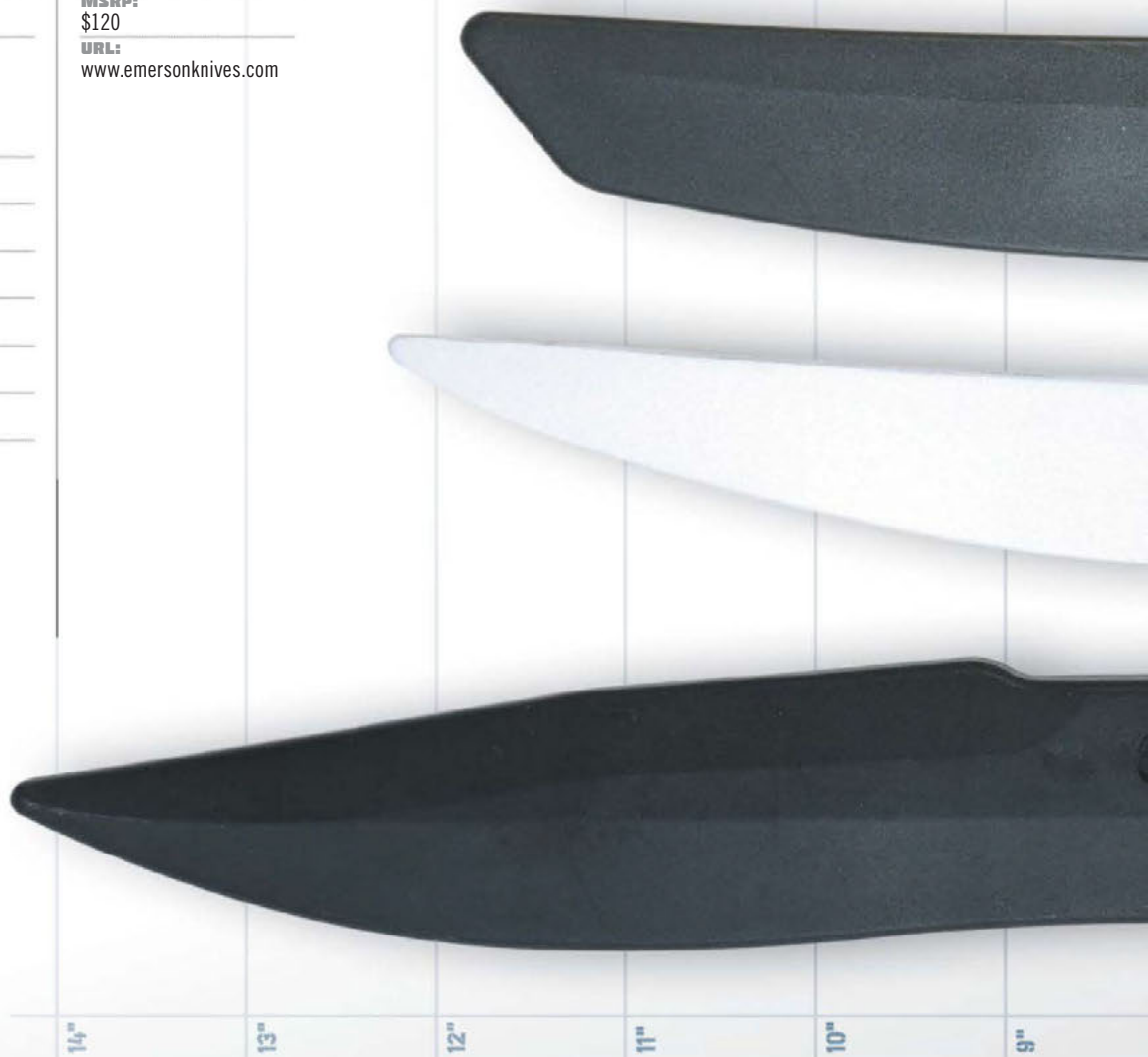
BLADE LENGTH:
2.6 inches

BLADE MATERIAL:
154CM stainless steel

WEIGHT:
8 ounces

MSRP:
\$120

URL:
www.emersonknives.com





8"

7"

6"

5"

4"

3"

2"



INTERROGATING THE UNUSUAL SUSPECTS

CRKT FE9 TRAINING KNIFE



411: This is the thermoplastic-rubber doppelganger of the aggressive FE9, a fighting knife on protein powder. As the biggest of this bunch, the FE9 Training Knife provides a safe tool for practicing sparring, knife strokes, and body mechanics involving larger edged weapons.

PROS:

- ▶ Handle closely replicates the FE9's uncommon shape and pronounced finger grooves
- ▶ Thermoplastic-rubber material holds up
- ▶ Good for drills against longer knives or daggers
- ▶ At just \$15, this is an affordable option

CONS:

- ▶ At 4.8 ounces, the trainer doesn't translate the heft of the original (15.2 ounces)
- ▶ While the original FE9 comes with a heavy-duty plastic sheath, the trainer comes with nothing

CRKT HISSATSU TRAINER



411: Inspired by an old Samurai sword design, the live-blade Hissatsu is meant as a backup weapon for soldiers overseas and SWAT officers stateside, but it works for martial artists and knife nuts, too. The trainer clone has a dull aluminum blade and a double-injection glass-filled nylon handle with a soft textured rubber grip. Both versions clock in at a little more than a foot in length, but have relatively thin profiles.

PROS:

- ▶ Excellent duplicate of the sharpened-blade version
- ▶ With the blue handle, there's no mistaking its identity
- ▶ Comes with a sheath (also blue), allowing you to run it in practice sessions just as you would in real life

CONS:

- ▶ Loses a dimension of realism because it's less than half the weight of the live-blade knife
- ▶ Coating on aluminum blade feels powdery and mars easily

COLD STEEL RUBBER TRAINER



411: This one's patterned after Cold Steel's Recon Tanto, a ridiculously hardcore combat blade that can withstand all sorts of abuse — and dish it out, too. The trainer is made of Santoprene, a proprietary thermoplastic elastomer (or synthetic rubber), and approximates the look and shape of the sharpened fixed-blade version. Cold Steel trainers are ubiquitous in martial arts schools around the world.

PROS:

- ▶ A close facsimile to the Recon Trainer, giving you a good sense of what it's like to fight with (or against) a larger combat knife
- ▶ Santoprene is a bit more forgiving than steel or aluminum, yet quite tough
- ▶ The most affordable option in this group

CONS:

- ▶ There's no dedicated sheath for this trainer, eliminating any chance at practicing realistic fast draws. Sure, you could start all drills with the knife in your hand, or pull it out of your waistband, but...
- ▶ Significantly lighter than the live-blade version

SPYDERCO P'KAL TRAINER



411: This unsharpened knife (and its live-blade brother) is quite unique. First, it looks like the blade's on backward, but it's meant to be held in a reverse grip. Second, the edge intentionally points inward toward you to help with strikes and control (think stab then pull). Third, the peg on the blade's spine is actually a removable version of Emerson Knives' patented wave-shape opening feature, which opens the knife as you draw from your pocket.

PROS:

- ▶ Spyderco's patented Ball Bearing Lock is ambidextrous
- ▶ Made of top-notch G-10, the red handle tells your training partners that it's safe
- ▶ 440C steel blade is like an airsoft pistol: it won't harm you if used properly, but it'll certainly let you know when you've been hit

CONS:

- ▶ Can't afford a \$280 training knife? We understand. We're not trust-fund babies, either.
- ▶ Due to the unique design, only owners of the live-blade P'Kal might find this useful

SPYDERCO DELICA 4 TRAINER



411: This tool shares all of the same features as one of Spyderco's most well-known knives — but without the sharp edge and tip, of course. From the trademark volcano grip pattern with ambidextrous pocket clip to the modified drop-point blade with jimping on the spine, this trainer handles just like the real deal.

PROS:

- ▶ This trainer is ideal for safely learning how to manipulate a folding knife and to defend against one, because it operates exactly as a Delica 4 does
- ▶ The red handle, made of fiberglass-reinforced nylon, clearly designates it as a training model
- ▶ Blunt AUS-6 stainless blade keeps the training "honest" and realistic

CONS:

- ▶ Costs a pretty penny — as much as some of the sharpened knives — but it's worth it if you have the cash

EMERSON KARAMBIT TRAINER



411: Clueless critics say karambits are just flashy, exotic knives with few benefits. But those who study Southeast Asian martial arts know how devastating they can be with the right techniques. Mimicking the badass live-blade version in form and function, this unsharpened model lets you practice those techniques without fear of cutting yourself or others.

PROS:

- ▶ Operates just like its sharpened twin, from the G-10 handle to the wave-shaped feature that opens the knife as you draw
- ▶ Blue G-10 handle signifies that it's a training knife, preventing any potentially dangerous mix-ups
- ▶ Safe way to show how difficult it really is to disarm someone wielding a karambit

CONS:

- ▶ This premium tool with stellar craftsmanship and innovative design doesn't come cheap at \$120



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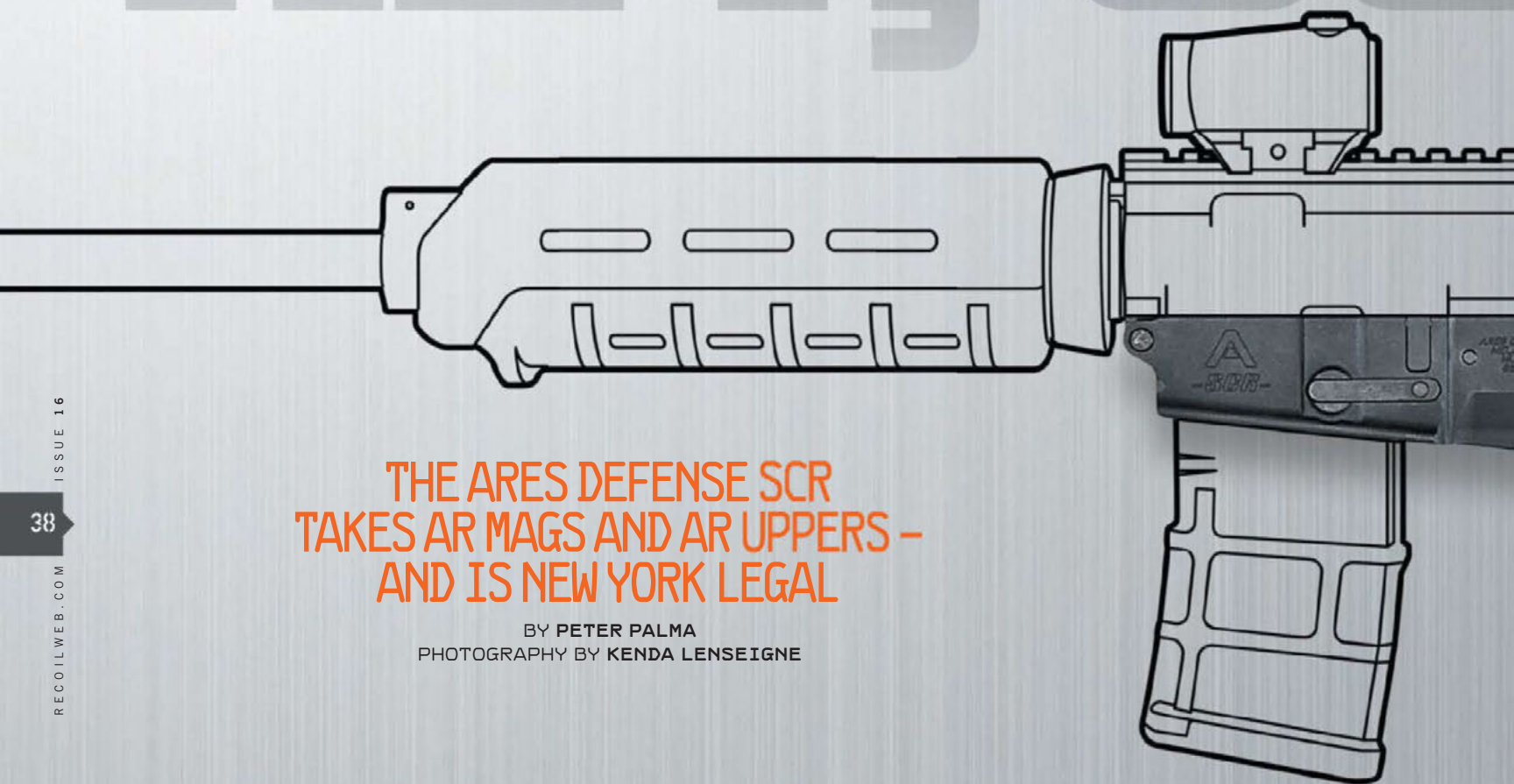


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HEY, GU



THE ARES DEFENSE SCR TAKES AR MAGS AND AR UPPERS – AND IS NEW YORK LEGAL

BY PETER PALMA
PHOTOGRAPHY BY KENDA LENSEIGNE

If you happen to live in a state like New York, California, or Connecticut (where most of the stuff in this publication is illegal for you to purchase), you still have a few options left.

Assuming moving to a free state isn't one of them, there are nonetheless semi-automatic 5.56mm rifles available to you. And Ares Defense has recently added one more.

Historically, the Ruger Mini-14 has always been available to the entire United States. But, with its proprietary, expensive, and difficult-to-find magazines, questionable accuracy, limited aftermarket support, and less-

than-ideal optic mounting, it hasn't been an optimal choice. The Kel-Tec SU-16 series rifles at least accept STANAG magazines and feature Picatinny rails for mounting optics, but the shape of the stock requires them to be mounted lower than an AR, so a good cheek weld with an ACOG or optic of similar height is impossible. Also, the Kel-Tec has even less aftermarket support than the Mini-14. What about the venerable AK? Well, those neutered Saigas in 5.56mm caliber also have proprietary magazines, little aftermarket support, and inadequate mounting options for optics.

So the products available to people in these benighted states just don't give the shooter too many choices. And as American consumers, we value choices, damn it! We want at least three gas stations on every street corner, 200 craft beers on tap, and 1,000 toothbrush options to choose from.

There are a number of modifications available for the AR-15 platform that are legal, but they tend not to be very ergonomic, as they're an adaptation to bypass — sorry, *comply with* — ridiculous legislation. They're also ugly. Which is kind of irrelevant for a firearm but, hey, you still have to look at it.

JO MO...



Well, now citizens behind enemy lines can rejoice as there is a solution in the Ares Defense SCR, or Sporting Configurable Rifle. The SCR is a 50-state-legal, lightweight carbine that accepts STANAG magazines and AR-15 uppers.

THE SCOOP

If you're looking at the photo on this page and thinking "impossible," let us explain how the engineers at Ares Defense figured this one out. The lower borrows the hand placement and stock style of a hunting shotgun or rifle and marries it with the magazine well and takedown pin locations of an AR-15.

To make the grip as comfortable as a traditional firearm, the recoil spring is located in the stock and goes down at an angle through the pistol grip. The receiver is designed to interface with Remington 870/1100 stocks, but if you want to add your own favorite piece of highly figured walnut, be warned that you may have to remove a tiny amount of material from it — but apart from a minor bit of fitting, it should be compatible. The proprietary bolt carrier has a hinged tail similar to a FN FAL and travels in the direction of the aforementioned recoil spring.

The SCR is only sold as an entire

rifle, rather than a stripped lower, and the base model is equipped with a non-threaded, 16.25-inch, lightweight contour, 4140 Chromoly 1/9-twist barrel, along with a five-round magazine, Magpul MOE handguards, and a Monte Carlo stock that will enable a decent cheek weld — even with taller optics. The SCR is also available with a sporter stock (with lower comb) and a short sporter stock for smaller-framed shooters. In the interest of science, we found that a powerful buttstroke could more easily be delivered from the SCR than an AR-15, as the shooter did not have to adjust his grip.

The SCR's muzzle is not threaded to maintain compliance with laws such as the New York SAFE Act. Note the recessed ring, which will accept clamp-on muzzle devices.

Since the popular Remington 870/1100 stocks fit on the SCR, the shooter has a wide variety of styles and colors to choose from. A wood buttstock could be combined with a wooden AR-15 handguard (yes, they are available) to make a very non-threatening firearm that still has modern capabilities whilst keeping a low profile. The SCR is also available in 7.62x39mm and can be fed from C Products Defense stainless-steel magazines, which in this writer's experience are arguably the only AR mags in this caliber worth a damn.

The standard SCR is not equipped with a last-round bolt hold-open; however, this can be purchased from

the factory and fitted as an option. The magazine release is more difficult to reach than on an AR-15, making emergency reloads slower. The situation is reversed in the case of tactical reloads where the shooter retains a partially empty mag, once the optional ambidextrous magazine release is added — you hit the mag release with your support hand thumb while simultaneously stripping the partial mag out of the gun.

Because of the way the rear of the lower is shaped, popular .22LR conversion kits or uppers cannot be used with the SCR rifle without a good deal of modification — or much bravery with an angle grinder. To address this



shortcoming, Ares Defense is developing a compatible .22 upper, but there is no word yet as to when the release date for this might be. Perhaps around the time affordable .22LR ammo shows up...

With the use of a sporter stock, the shooter can utilize very low-mounted optics and take advantage of the slightly extended point-blank range afforded to firearms that have a very small optical (offset) height. Our trigger-pull gauge maxes out at 12 pounds, and the SCR's trigger was literally off the scale. We felt

it probably came in at around 15 pounds, which was a bit much for precision work. The reset was audible and smooth, but not very forceful, still leaving the shooter with more than a couple of pounds to take up before the break. The trigger functions basically the same way as semi-automatic hunting rifle or shotgun, so a properly trained gunsmith should be able to slick it up. But for those of us used to the simplicity of a drop-in solution, the good news is that Bill Geissele is working with Ares Defense to produce an aftermarket version. The SCR has a cross-bolt safety reminiscent of a Remington 870 — easy enough to disengage with the trigger finger, but

not as easily reapplied as with an AR. Any charging handle can be utilized with the SCR, though it comes from the factory with a perfectly adequate ambidextrous version. The shooter should be cognizant of not choking up on the pistol grip too far, as this can obstruct the charging handle's rearward travel. This is one of those self-correcting problems, as after the first couple of gashes to the thumb, you tend to remember to shift your grip while racking.

The lightweight contour barrel played a large part in keeping the test rifle's weight well below the 6-pound mark. Even with the addition of an Aimpoint Micro T-1, it tipped the

The sporter stock works perfectly with low-mounted optics, such as the Aimpoint T-1 pictured here, resulting in a small optical offset.





Above: AR-15s have a receiver extension into which the bolt carrier group, buffer spring, and buffer reciprocates. The SCR instead has a proprietary bolt carrier with a rat tail that extends into an angled recoil tube and spring in the stock when it travels rearward, similar to the FN FAL. The SCR bolt is shown on the left, and an FN FAL bolt on the right. Note that this example lacks the optional bolt hold open.

scales at a featherweight 5.8 pounds. However, the low-profile gas block doesn't have provisions for mounting a front sight, so backup irons are out of the question. The more observant among you will no doubt have picked up on the lack of a flash suppressor and the barrel's recessed ring, machined near the muzzle. Because threaded muzzles are one of the "evil features" banned by New York's SAFE Act, an alternative solution was needed. "No problem," said the engineers at Ares. "We'll just design a clamp-on flash hider that doesn't need muzzle threads."

The upper thankfully comes without a forward assist and is a slick-sided unit bereft of a brass deflector, though aftermarket brass deflectors that attach to a Picatinny rail are available. We realize that we are nitpicking, and in reality none of these small issues

Top: While only sold as a complete rifle, the SCR's lower will accept any AR-15 compatible upper, such as the home-built one shown here. You will need to swap out the bolt carrier, though. Be sure that your choice of components on your replacement upper complies with local laws. The Monte Carlo stock with raised comb accommodates typical tall AR optics.

with the upper really matter because a shooter can — and probably will — simply pop the takedown pins and drop on any AR-15 upper they like. Note, however, that the bolt carrier for the SCR is proprietary, so you cannot use standard or aftermarket AR bolt carriers.

RINGING STEEL

Out on the range the SCR, combined with the Aimpoint Micro T-1, delivered consistent 3-inch groups at 100 yards with both Winchester Q1311 and American Eagle ball ammo, with our largest group coming in at 3.25 inches. MGM auto poppers were boringly easy to hit at that range, and the light weight of the rifle made it easy to transition between targets and to shoot from the standing position. There was no additional perceived recoil from the unorthodox

bolt and recoil spring setup, and the overall performance was on par or above any semi-automatic 5.56mm rifle with the same \$850 MSRP. Shooting an SCR in comparison to an AR-15 is relatively similar and unremarkable, which is the whole idea behind its design.

We wanted to check out the SCR's adaptability, so we grabbed a home-built upper with a FN M-4 barrel, rifle-length handguard, and a higher mounted Aimpoint Micro T-1. Pulling the pins on an SCR lower fitted with the Monte Carlo stock, ambidextrous magazine release, and bolt hold-open option, we ditched the factory upper and slapped on the new one. With observers standing by, we waited for the Dr. Jekyll-to-Mr. Hyde transformation to overtake our psyche, for an inanimate object to fill us with blood lust. Nope, nuthin'.

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Running this setup was even more seamless than the stock SCR. Magazine changes were much faster and safer, as we were able to close the bolt with the release button, rather than using the charging handle. Our five-shot group at 100 yards even shrunk to 2 inches, which isn't bad considering we were using ball ammo, an unmagnified optic, and a trigger the weight of a bowling ball. No stoppages of any kind were noted during the range session.

The SCR performed very well at the range, feeling very similar to a typical AR-15. Which is exactly the point.

BOTTOM LINE

The Ares Defense SCR is a viable and ergonomic rifle that gives the owner access to a vast aftermarket of magazines, parts, and accessories. Until now there has been no rifle designed specifically as an alternative to the AR-15 platform while offering compatibility with many of its components.

With certain pipsqueak fascists pushing legislation that prevents

upright citizens from owning the types of rifles needed to ensure the security of a free state, responsibility is falling on manufacturers to create alternate products. We're sure it isn't lost on any law-abiding individual that the Ares Defense SCR complies scrupulously with the law in states that have passed draconian restrictions. Or that AR-15 uppers are not in themselves firearms, and therefore freely available. **R**

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MSRP
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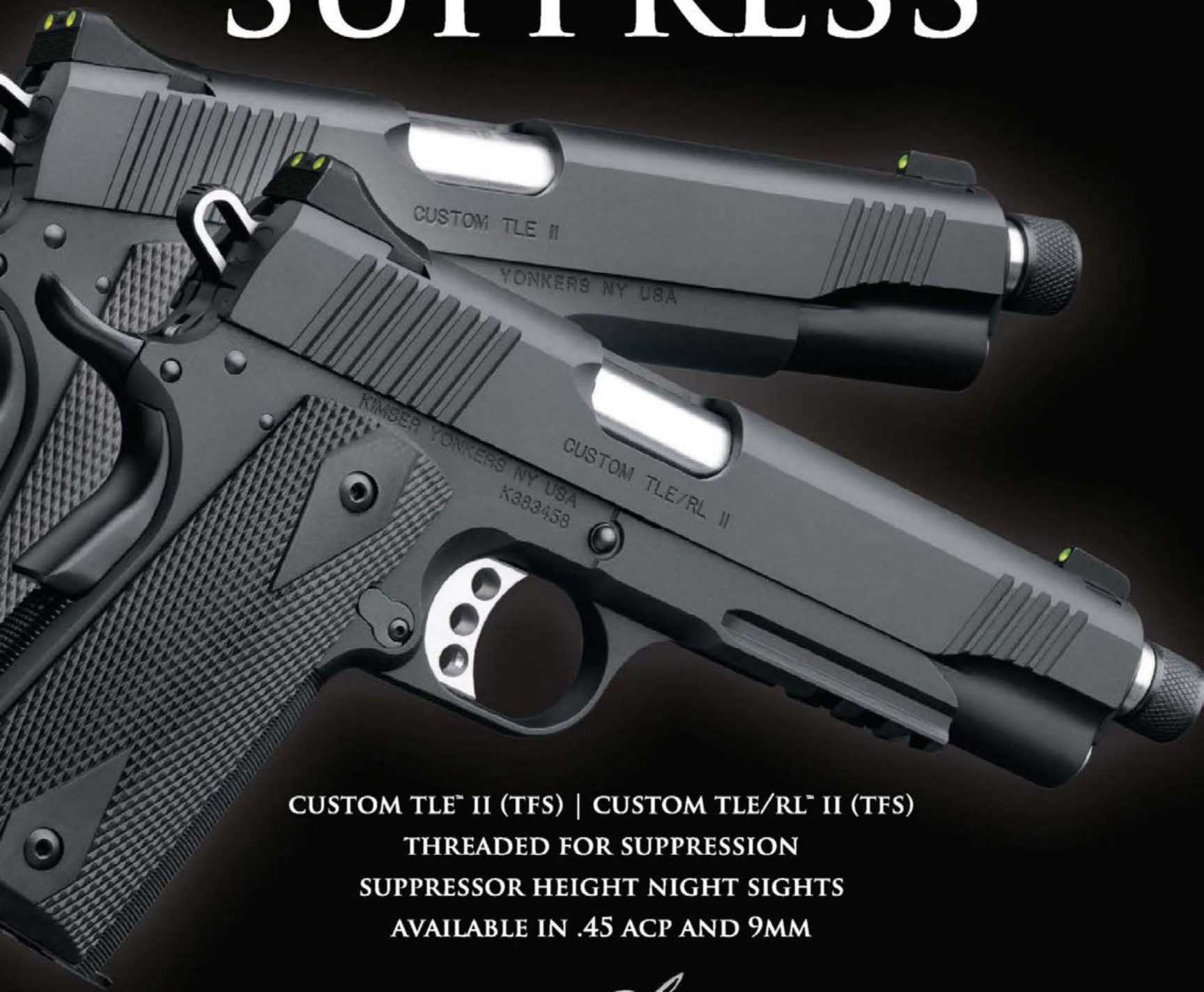


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The P-09 and P-07 with some of their forebears. The newer Polymer Omega Series retains a grip angle very much the same as the original CZ-75, but with different internals and a different magazine. The P-09 is taller and longer than the CZ-75, but is almost two-thirds of a pound lighter.

LEARN COMBAT PISTOLS

A FORMER DELTA OPERATOR BREAKS DOWN THE CZ POLYMER OMEGA SERIES
AND HOW TO WIELD IT USING THE LATEST IN HANDGUN MARKSMANSHIP

BY MIKE PANNONE

PHOTOGRAPHY BY SHINNOSUKE TANAKA

Intellectual clarity is efficient thought — and efficiency is the hallmark of everything we do in combat pistol marksmanship. The modern craft has been refined and clarified to such a degree that, as I often tell students, “It’s like a math problem.” If we clearly define the task, we can maximize the learning curve of proper technique and save time, as well as speed up execution of the task.

In a combative environment, lost time is bad and can be deadly. For that reason, speed is crucial — but efficient speed, not frantic failure-prone speed. Efficient movements often look deceptively slow, yet the timer will reveal how efficient they really were. Economy of motion is efficiency, and efficiency is the guiding principle of all athletic endeavors...combative shooting is no different.





Above: Why is it important to practice with far targets? In Joint Special Operations Command, we spent a lot of time shooting 25 yards for accuracy. The theory is that “if you can’t shoot slow and accurate, then you can’t shoot fast and accurate.” Another benefit of distance shooting for accuracy is that it inoculates you against the stress of a low-percentage (difficult) shot at shorter distances. I routinely shoot my carry gun out to 50 yards, as shown here — and if I’m confident at that distance, then I can make a 5-yard speed/surgical shot with ease.

MODERN COMBAT PISTOL MARKSMANSHIP

First and foremost, the modern craft of combat pistol marksmanship — and the teaching thereof — has taken a page out of professional athletic coaching and sports psychology books and methodologies. The old “shut up and do it this way, because this is the way we do it” mindset has been purged from the modern craft. I, as well as all of the highly regarded instructors and professional trainers, have become technicians of the art. That is not to say that we all agree

on everything, but those things on which we have a differing approach are always open to discussion.

Most of the modern art is very specific, and the integrating of how the weapon’s platform was designed to be operated with the best ranges of motion for strength, dexterity, and visual acuity collectively create the most efficient shooter possible. One of the hallmarks of modern methodologies is the component approach to training. If every task can be disassembled and each subsequent component part identified, then when we reassemble

the technique and evaluate it in practice, it’s much easier to identify a component failure rather than relegating everything to a systemic failure.

Think of a vehicle that is having problems. A good mechanic will check one thing at a time — the status of spark, fuel, fluids, etc. You don’t just dive right in and start turning wrenches on everything; you need to analytically figure out where the problem lies.

The same is true for combat pistol marksmanship. We have traditionally broken it down into major components: grip, stance, sight alignment, sight picture, breath control, trigger control, follow-through, and recovery. The most modern approach is to define each step and further identify its interrelation to the others. Along with this approach, we have added in the mental game as a part of this. That means we need to feed the mind the right pictures as we run the gun. We think in pictures and put them into words, so others can turn them back into pictures of understanding. As instructors of the modern art, we must be able to clearly and concisely put our thoughts and ideas into words that do not lend themselves to mistakes in interpretation. By doing this we are giving the shooter a specific, clear, and concise picture of what we want them to do.



Right: Low-light techniques.

EFFICIENT TRAINING AND TECHNIQUES

To train efficiently, and before you adopt a technique, you must know the following with specificity:

- » What are you doing? A specific defined positive action.
- » Why are you doing it? A specific defined positive outcome.
- » How does it work? The mechanism of success (i.e., what actually makes it succeed).

Then you should:

- » Identify the most likely mistakes or failure points and why they happen.
- » Precede those most likely mistakes or failure points with proper training.

The above template is the framework to understand, evaluate, and critique actions and techniques — both competing and new.

Some examples of the component approach are using the principles of strength, dexterity, and visual acuity as the three most important benchmarks of evaluation when assessing and reviewing existing or new techniques. For example, the component approach is crucial when teaching shooting on the move. By breaking down the act of walking into posture, pace, and gait, it's much easier to see the interrelation while shooting on the move. This will give an instructor the ability to readily identify if one component of the walking sequence is detracting from the task. Then it can be corrected while leaving the others alone.

What we're seeking overall is simplicity, surety (reliability of the technique under operational conditions), consistency, and continuity. Avoid techniques that are distinctly different during the day versus night, or under differing conditions. Whenever possible, co-opt as many existing motions and/or actions as possible from other techniques. Doing so makes the task easier to learn, since you're actually using an existing motion for a different purpose.

On the material side there are some simple concepts that are again driven by efficiency:

- » **Don't let accessories drive your technique:** By this I mean don't add something to your pistol that forces you to modify your shooting technique, unless the benefit outweighs the change. Two common accessories are extended slide stops and magazine release buttons. They often help in releasing the slide and releasing the magazine — but sometimes they do this when you don't want them to.
- » **Don't adopt a technique that deactivates an accessory:** A particular example is holding a pistol so you are consistently deactivating the slide stop. I consider the slide stop a crucial part in the operation of the pistol and for operator survivability. You should not hold a pistol in a manner that deactivates a crucial part and jeopardizes the shooter — not notifying him the pistol is empty, forcing him to cycle the slide on every reload, or masking magazines that are unserviceable. That



Right: The commonality between grip angles and controls on the P-07 and P-09 make them a family of guns that you can shoot for just about everything: carry a P-07, in USPSA Production Class use a 9mm P-09, in USPSA Limited and Limited-10 Class use a P-09 in .40 S&W, for duty use (law enforcement) go with a P-09.

Effectively engaging targets while moving, as well as the ability to move rapidly from one position to another, stop, settle into a stable shooting position, and break an accurate shot as rapidly as possible, are all crucial skills in sport and combative uses of the modern combat pistol. You should be sure to practice all aspects of combat pistol marksmanship while moving or immediately upon stopping after movement.



mistake costs time and often deprives the shooter of one round for no reason other than bad technique. It will also increase the risk of magazine failure, because shooters assume the pistol did not lock back because of shooter error, not a potential issue with the magazine.

- » **Don't let substandard or unserviceable equipment drive your technique:** If something is unserviceable, like magazines that won't fall free or won't lock back reliably, then simply replace them. Don't add a step into your reload that assumes the magazine will stick in the well. Material failures should be remedied by a material fix, not a technique change.

The craft of modern combat pistol marksmanship is far more scientific than in the past. It is producing better shooters in shorter periods of time with less ammunition than ever before. In these times of strife both domestically and worldwide, law enforcement, the military, and civilians have reaped the rewards of a much more concise, logical, and scientific approach to shooting a handgun in defense of yourself or others.





THE CZ P-09 AND P-07

With the prevalence of the modern technique over the past decade, we have also become more discriminating in our choice of sidearm. I've shot just about everything available and own many of them. Performance should be the driving factor in the choice of a sidearm, given a reasonable price. I first started shooting the CZ P-07 (Compact) about four years ago and have really grown to love the gun. Last year, I purchased a full-size P-09 and have been very impressed with it from day one. They have stacked up very well on the criteria I use to evaluate a pistol:

- ▶ **Safety:** Firing-pin safety and manual decocker or cocked-and-locked option.
- ▶ **Reliability:** Nearly 100 percent over five different guns (three P-07s and two P-09s) and a total of over 35,000 rounds.
- ▶ **Durability:** Zero parts breakage with over 35,000 rounds expended.
- ▶ **Accuracy:** Testing a brand-new CZ P-09, 10 shots at 25 meters resulted in a score of 100/100 6X (i.e. six in the center X ring). The only modifications were a fiber-optic front sight from the CZ Custom Shop and bicycle tubing on the grip.

The P-series pistols come with small, medium, and large backstraps that can be easily swapped out.

▶ **Shootability:** My one-shot draws at 10 meters are one second in double-action mode, with 0.2 second or better splits with little trouble at the same distance.

▶ **Capacity:** 19+1 in 9mm and 15+1 in .40 S&W for the P-09 (15+1 and 12+1, respectively, for the P-07).

▶ **Cost:** MSRP of \$530 (P-09) and \$510 (P-07).

▶ **Accessories:** Sights, holsters, and extended base pads are currently available.

The P-series pistols I own are outstanding in all categories. Accessories are a little slim due to the newness of the pistol, but are slowly coming along as popularity rises. The pistol is a double-action/single-action (DA/SA) pistol with the Omega trigger system. This is a simplified CZ 75 trigger system, allowing the shooter to change

from a decocker to cocked-and-locked capability with only a punch and a small screwdriver. It has a firing-pin safety block and decocks to the half-cock position, so it's easily as safe as any modern hammer-fired pistol.

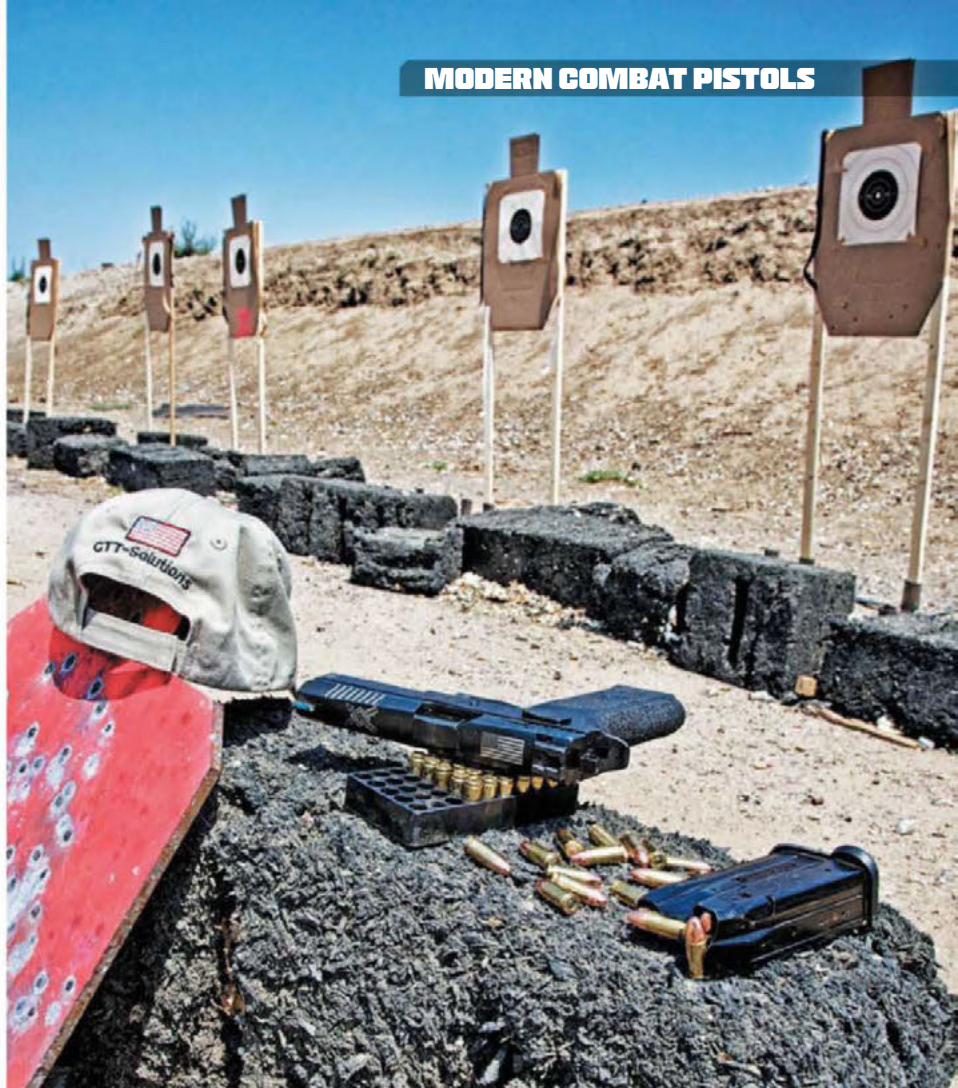
The P-09 and P-07 come with three different sized replaceable backstraps. A pistol must feel "right" to





Left: The Omega system allows you to configure the P-series for decocking or cocked-and-locked use. The decocker is a convenient and safe way to lower the hammer. I have no big preference based on the design of the CZ guns. The traditional CZ-75 trigger mechanism requires manually decocking, versus the BD or P-series that have a decocking lever.

Right: This is the author's personally owned P-09 with Dawson Precision sights and laser engraving by Jeff Morris of LEO Armory. Photo courtesy of Jennifer Termini Photography (www.terminiphotography.com)



The sights that come with the gun are simple metal three-dot white or tritium night sights, but they can be easily swapped out for either a CZ Custom combat set with a fiber-optic front sight or Dawson Precision competition sights, also with a fiber-optic front sight. I have

MODERN COMBAT PISTOLS

the CZ Custom sights on my carry P-07 and am extremely happy with them. My P-09 has Dawson sights, and since it's a USPSA Production Class gun, I'll probably leave them alone.

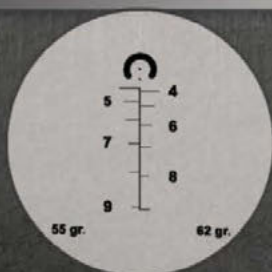
RUNNING THE CZs

My pistols are configured in the DA/SA mode with decocker function. I see absolutely no detriment to having a DA first shot and in fact much prefer it on my carry gun (a P-07) over striker-fired



Lower left: What type of sights should you choose? I have shot tritium sights for operational use or carry for most of my shooting life, but my experience shooting USPSA competition has really shown me the speed advantage of fiber-optic sights. With the availability of low-cost and high-output flashlights — and the reality that in low light you must have a flashlight to see a threat and legitimately engage it — I see no real benefit of tritium over fiber-optic sights for me. I run a fiber-optic front and a black rear on most of my guns, even carry guns, and always carry a flashlight.




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▶ ABOUT THE AUTHOR

Mike Pannone is a former operational member of U.S. Marine Reconnaissance, Army Special Forces, and Delta. He has participated in combat operations and high-risk protection in support of U.S. policies throughout the world as both an active-duty military member and a civilian contractor.

Mike is also a certified FLETC firearms instructor, Federal Air Marshal instructor, NRA-certified law enforcement patrol rifle, pistol, and shotgun instructor, Glock Armorer, and Simunition FX Scenario and Safety instructor. His specialized knowledge in close-range and contact-distance pistol combatives coupled with his broad operational experience give him a wide range of practical knowledge that is unique.

He also owns CTT-Solutions, which provides training and consulting to vetted civilians, military, and law enforcement agencies nationwide. In 2010 — the first year CTT-Solutions did business as a standalone entity — it earned the Department of Homeland Security Small Business Achievement Award.

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guns. I find the longer pull in a DA/SA gun is somewhat of an inherent safety and has never degraded my presentation and first shot. As for the actual shooting process, I find it allows me to prep the trigger as I present the gun, so I am often even faster with the same level of accuracy

at defensive ranges (1 to 10 meters). CZ has engineered such a good trigger mechanism that DA is a non-issue with even a reasonable amount of training. If you get the gun worked on at the CZ Custom Shop or Cajun Gun Works, you'll have a DA and SA pull that will leave you wondering how it's even physically possible. My DA trigger pull is in the mid 6-pound range and in SA mode it's about 2.7 pounds.

The pistol manages recoil extremely well and tracks shot to shot very fast. I find it softer to shoot than comparable striker-fired guns because of the added resistance provided by the necessity of the pistol to re-cock the hammer every shot, thereby absorbing more of the recoil energy before it is transmitted to the shooter. This is a well-known phenomenon to 1911 builders. By tweaking the firing-pin stop bevel at the bottom and changing the hammer spring, you can noticeably change the unlocking time. The barrel lock-up and accuracy of the CZ is already at a match-grade level when stock, thus obviating the need to re-barrel the gun if you want to shoot competition as is common with some other well-known pistols.

To sum it up, the P-07 and P-09 are safe, very reliable and durable, extremely accurate with a stock barrel, and extremely shootable. At a \$530 price tag for the P-09 (and \$20 less for the P-07), they are great values in the pistol market and well worth the investment. ■





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GOING THE DISTANCE

A CASE FOR LONG-RANGE PISTOL SKILLS

BY ERIC LUND

PHOTOGRAPHY BY JUSTIN MELNICK

It's a lazy Saturday morning, and you're proud of yourself for getting out of bed early and beating the crowds to the local mall. After grabbing the perfect birthday gift for your wife, you exit the mall and briefly pause to scan the quickly crowding parking lot, trying to remember exactly where you parked. Locating the spot, your thoughts drift back to that perfect gift as you start walking across the parking lot. *She's going to love this*, you think to yourself. Suddenly, a surprising pop of a firecracker startles you back into reality. Then, four more go off in quick succession. You think, *it's a little early for that crap*, when you look up in time to see a woman about 90 yards away, frantically running down the row of parked cars toward you. Even from this distance you can tell she is running away from something...something bad.

You hear two more cracks in quick succession. The running woman falls to the ground. Instantly the situation becomes crystal clear. You see a man behind her. He is calmly walking toward the woman on the ground. He has a pistol in each hand and what appears to be a rifle or a shotgun slung over his shoulder. He walks with purpose, but with no urgency. The woman on the ground attempts to crawl toward a parked car in a feeble attempt to hide as the man walks by her. He calmly extends his pistol and fires one more round into the woman without

slowing or pausing to see his work. The woman instantly goes still. You watch the events unfolding like some surreal movie, not wanting to believe what is happening. Unsure what to do, you stand there frozen for what seems like minutes, and then it happens. Your training kicks in and a voice in your head screams, *move!*

You made the decision to obtain your carry permit and took it upon yourself to seek out good, professional training in its use. You learned how to deal with aggression and violence. You don't fear aggression, you fight it! So you quickly move to cover. The engine block of the closest parked car offers excellent cover and concealment. You draw your legally concealed pistol and take a kneeling position over the hood of the car, resting your arms and steadying your aim at the threat. He's 80 yards away, still walking with purpose. Walking directly toward the mall entrance you just exited — the one directly behind your position. In the distance, you notice two more bodies on the ground further out in the parking lot. Three victims down, and you're determined not to be number four. You focus the front sight on the threat. The front sight looks as big as a skyscraper. It almost completely blocks out the threat. Nerves begin to set in. *Too far*, you think. *Too far away. I can't make that shot.* What to do? Should you move closer and risk exposing yourself? Should you wait for him to get closer

and ambush him? Should you run? Should you hide? What to do...

If a threat is 80 to 100 yards away from you — can you make the shot with a pistol? Setting aside the questions of tactics and the legalities on intervening, is this a necessary skill? Do you really need long-range pistol skills? Maybe it's time we reexamine the role of the pistol and its employment in modern society before making that determination.

THE ROLE OF THE PISTOL

The traditional role of the pistol is as a personal defense weapon for close distances. Over the past few decades, law enforcement and private training institutions have built firearms training programs around oft-cited FBI gunfight statistics that purport to show that most gunfights occur at less than 7 yards. There can be no doubt that many of those fights do occur at close distance — but that's not the entire story. Much of the reported data, while accurate, can cause erroneous conclusions by failing to understand the entire context of the data.

For example, if a bad guy runs down an officer with a vehicle, severely injuring him, and then walks up to the officer and shoots him, the incident is classified as a gunfight that occurred at 3 feet. In reality, the bad guy simply executed a defenseless officer, and no actual "fight" took place.

DISCLAIMER:

The concepts and techniques shown here are for illustrative purposes only. When handling firearms, always observe all firearm safety rules. Seek professional instruction before attempting any techniques discussed or shown in this story.



All of the data is technically correct, but how it was interpreted causes some inaccurate conclusions. A review of the FBI crime statistics reveals that a lot of gunfights do occur at close range, but a critical review of those statistics shows that the true percentage of those incidents is lower than what is typically reported due to the nature of how they are classified. What this data really shows us is that the possibility of having to engage a threat over 7 yards is greater than you might think. While that little dose of reality settles in, let's examine another training concept with applications to our discussion, precision marksman training.

PRECISION MARKSMANSHIP

Call them what you will — snipers, counter-snipers, precision marksmen, designated marksmen — they all possess at least one common skill: the ability to deliver an extremely precise shot. Our military snipers routinely engage threats more than 1,000 yards away in Afghanistan, but the average law enforcement sniper shooting in the United States is less than 100

yards. While all of this may be quite interesting, what relevance does it have to the applicability of long-range pistol shooting for the average citizen? A quick look at precision rifle training methodologies gives us our answer.

Why do law enforcement snipers train out to distances of 500, 700, and even 1,000 yards if the average distance they will engage a threat is less than 100 yards? The answer is simple. Excellence in fundamentals builds confidence. Attempting to make a 75-yard headshot when equipped with a state-of-the-art precision bolt rifle, with an optical scope that costs more than your first car, is relatively easy. But if you extend that distance to 200 yards, it becomes more challenging. At 500 yards, it becomes quite technical. Anything over 700 yards takes real skills, real fundamental skills.

Train a police sniper to engage threats at distances over 700 yards and 100 becomes a chip shot, something he can do in his sleep. Having supreme confidence in his ability to make that shot will keep him calm and relaxed, as he does his job in a matter-

of-fact fashion. It's all about training hard and fighting easy. What is the difference in fundamentals between long-range precision shooting with a rifle and long-range pistol shooting? The better question should be, "What do they have in common?" They both require a stable shooting platform and a complete understanding of the fundamentals of marksmanship — such as sight picture, sight alignment, breath control, trigger control, and even an understanding of ballistics, depending upon the distance. The equipment may be different, but the fundamental skills are still the same.

From a pure skill perspective, it takes a relatively low-level of competency to hit a threat at 5 yards, but extend that distance from 7 to 50 yards and what's changed? Other than distance, the only change is the intensity with which we apply the fundamentals to the shooting process. Unfortunately, shooting is not a natural talent. You have to work at it, and therein lies the real challenge. These fundamental skills are not necessarily fun or flashy, but are nonetheless quite necessary.



LONG RANGE PRECISION JUST GOT MORE PRECISE



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Start at 15 yards and work to keep all your hits in a tight, high center-mass group. As your skills develop, continue pushing the distance back and continue to refine the application of your fundamental skills. The day you start making good center-mass hits at 50 yards, the 25-yard targets become a little easier. And when you start making hits at 100 yards, 50-yard hits become an everyday success.

It's at this point that many readers might say, "I will never need to make a long-range shot. I live in the city or the suburbs," or "I would never be in a situation where I'd need to engage a threat from that far away." If you're nodding your head in agreement, then you need to recognize two things. First, if you choose to carry a firearm for personal protection, you need to accept that fact that we don't control the time or location of the fight. They will be chosen for us by our assailant — and when the fight does come to us, we need to be prepared to respond, regardless of the time or location. Second, the active-shooter event is sadly becoming a standard tactic among society's disgruntled or insane.

ACTIVE SHOOTER

This type of event is usually characterized by one to two persons, working solo or in a team, to inflict as much death and injury as possible in the quickest amount of time. Considering their objectives, certain types of locations tend to have a higher concentration of potential victims, and as such are prime choices for those perpetrating such violence. Places like schools, grocery stores, large discount shopping stores, and shopping malls are all high on the list of targets. All of these types of buildings have features that are of particular interest to our discussion — long hallways and large open parking lots. It's not uncommon to find ourselves at such locations on a regular basis. If the fight comes to you at one of these locations, are you really prepared for the fight? Are you really prepared to go the distance?

The fictitious story at the beginning is loosely based on an actual active shooter event. On February 12, 2007, Sulejman Talovic went on a shooting spree at the Trolley Square shopping mall in Salt Lake City, Utah. Prior to entering the mall, Talovic shot three people in the mall parking lot as he calmly walked toward the mall entrance. When it was over, five people were dead and several others wounded. If it were not for an armed off-duty police officer and the fast response of the officers from the local police department, it would have been far deadlier.

Clearly, shootings occur in close quarters — but not all do. If one day the fight comes to you, chances are it won't require a long-range shot. But if it should, having the standoff skills needed to engage the threat at distance, before he can effectively engage you, may be the edge you need to win the fight.

And what of our conflicted citizen from this story's opening?...What to do? *No, I can make this shot. I've done it before, many times.*

You reposition the front sight high up on his torso. You use his shoulders as a horizontal guide for your front sight. You steady your grip and rest your arms across the hood of the car. A deep breath of cool air fills your lungs. Your finger takes up the slack in the trigger. You make a quick change of focus to confirm proper sight alignment before you shift back to your front sight. As the air partially exits your lungs, there's a slight pause and a slight increase in your trigger finger pressure. The pistol barks loudly, but you don't hear it, nor do you expect to. You only feel your heart beating through your chest. You track your front sight as it settles back down into the rear sight notch. You release the tension on your trigger finger and take up the slack for another shot. You shift your focus back to your threat.

Did you make the hit? If you've trained for long-distance shots, then you already know the answer. If you didn't...well, maybe you can hide better than those other defenseless souls. ■

ABOUT THE AUTHOR

Erik Lund began his competitive shooting career in 1994. He's ranked as a grandmaster by the United States Practical Shooting Association and specializes in three-gun-style competitions. He has several state, regional, and national three-gun titles to his credit. Prior to joining Team FNH USA, Erik was a member of Team SIG SAUER.

Erik has more than 19 years of law enforcement experience — with over 17 years as an instructor of firearms, defensive tactics, use-of-force, baton, and less-lethal-weapons. He started his law enforcement career as a Virginia state trooper. He was assigned to Fairfax County for 8½ years before accepting a position as a federal agent.



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TRACKING POINT AND RIANOV
TAKE AIM AT THE FUTURE
OF LONG-RANGE SHOOTING

BY IAIN HARRISON
PHOTOGRAPHY BY STRAIGHT 8 AND KENDA LENSEIGNE



Until someone markets the fabled “phased plasma rifle in the 40-watt range,” today’s firearms are about as refined as they’re going to get. While this may seem like heresy coming from a gun rag, since Borchardt developed an effective self-loading mechanism in the 1890s, we’ve not really seen much in the way of paradigm-shifting technology since then. Sure, there have been advances in materials technology, but nothing has really fundamentally changed the way we either look at, or employ, guns. Line up the sights, press the trigger, rinse and repeat.

The adaptation of consumer electronics to the gun industry has been painfully slow. Almost everything else we use on a daily basis has a user interface — our cars, our TVs, hell, even our washing machines talk to us — but guns seem to be stuck in the 1950s. That’s now changing. So, we decided to take a look at a couple of innovations that might just gain consumer acceptance and, in doing so, shape the way we view our guns.

PFLUGERVILLE'S FINEST

TrackingPoint (TP) has certainly led the way when it comes to making precision shooting a trending topic in social media. Because of the unusual intersection of technology and guns, the company has waged a marketing campaign that targets both special-interest audiences, with dog and pony shows tailored to each one. It’s been wildly successful, with TP’s YouTube channel being the most viewed among firearms manufacturer and features on its targeting system aired on CNN, Colbert, Bloomberg, Businessweek, and so on.

In the firearms media, writers have been courted with the usual chaperoned hunts and range trips. One other magazine, which will remain nameless, went so far as to print a puff piece written by TrackingPoint’s marketing director and passed it off as editorial, right next to a full-page ad bought by the company.

At no time in any of the reports, however, has a representative of the

media made any sort of assessment of the TP system when pitted against a regular old firearm. Consequently, no one has ever answered — or even asked — whether the juice is worth the squeeze. With TrackingPoint debuting its new line of semi-auto rifles, we reckoned it was about time.

At the heart of all TrackingPoint Precision Guided Firearms (PGF) is a ballistics computer, mated to either a bolt or semi-auto rifle. The guns themselves are all top-shelf and were no doubt chosen to maximize the mechanical accuracy of the system, but all real innovation has gone into the electro-optical package. With 150 years since the adoption of the centerfire cartridge, there’s not a whole lot more that can be wrung out of that technology...

Instead of looking through a conventional sight, the shooter on a PGF observes the target on a display at the rear of the Networked Tracking Scope, which houses a camera and laser rangefinder. Its on-board computer receives input from a suite of sensors and





That isn't a front sight. Using technology cribbed from an M1 Abrams, the TrackingPoint scope uses a permanently attached barrel reference device to ensure it never loses zero. Ammo is custom loaded by Barnes to tight tolerances.



The sight unit's lower lenses are the emitter and receiver for the laser rangefinder. Upper glass is camera's objective lens.

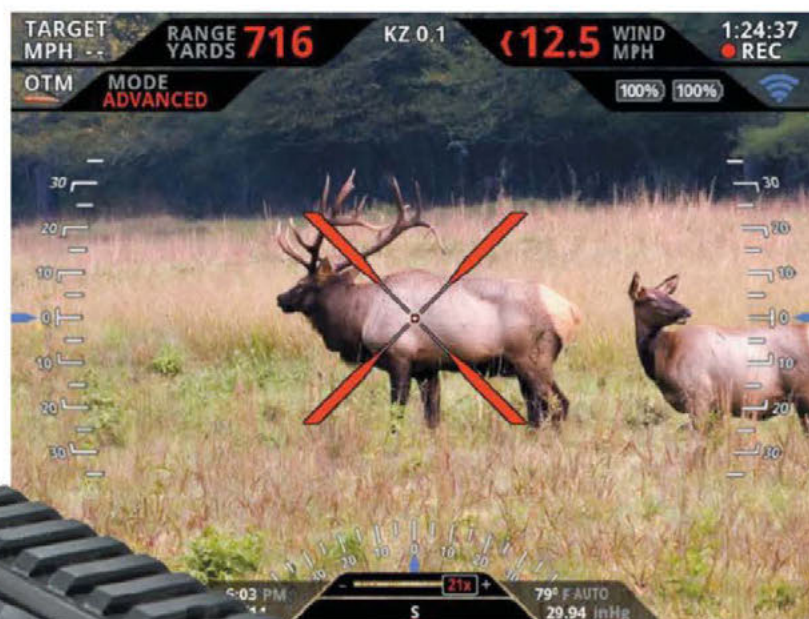
will calculate a ballistic solution based on range, inclination, temperature, elevation, barometric pressure, spin drift, cant, barrel wear, and Coriolis effect. Ammunition is matched to the gun and loaded specifically for it by Barnes to tight tolerances, again in order to maximize mechanical accuracy.

To engage a target in the system's Advanced Mode, (i.e., the one that has gotten all the attention) the shooter first ranges it by placing the display's crosshairs either on or close to its location and pressing a button mounted on the trigger guard. From here on in, the computer takes over and calculates a firing solution which results in the crosshairs changing color and leaving the target, coming to rest somewhere lower down in the screen. Once a range has been established, the shooter will then "tag" the target by repositioning

the crosshairs and pressing the button a second time, designating the point he wants to hit. This tagging process is as important as actually making the shot in a conventional firearm, as the PGF will then lock onto the designated position, using pixel recognition software to keep the tag in place, even if the target moves at speeds of up to 15 mph.

To send lead downrange, the shooter pins the trigger to the rear and moves the rifle in order to place the crosshairs back onto the tag location, which is marked with a red dot. When the sight recognizes that the reticle is over the tag spot, a solenoid releases the striker or hammer and the shot is fired. Because the shooter's physical input is minimized when the primer is struck, jerking the trigger, poor breathing technique, or an imperfect hold is not a barrier to making the shot.

TrackingPoint has studiously avoided making any claim in its marketing materials that it's impossible to miss a shot, but from all the breathless hyperbole in the mainstream media, you might get the impression that the system suddenly enables a neophyte to outperform the saltiest of SEAL snipers. It doesn't. Like any weapons system, it has its own set of limitations and weaknesses and



requires some effort on the part of the user to master. The ballistic computer does, however, allow a user to be confident that the gun will shoot where it's pointed under ideal conditions.

If you've expended hundreds of rounds to fill your DOPE (data of previous engagement) book and know exactly how much your rifle's point of impact shifts when you move from sea level to 8,000 feet, or if the temperature drops from 90 to 40 degrees, or if the barometric pressure changes from 1,008 to 1,033 millibars, then you probably won't see too much improvement in your performance from the TrackingPoint system. Alternatively, if you think that all you have to do to connect at 1,000 yards is to aim a little bit higher, then you either need to spend a lot more time at the range, or pony up for something that will provide that data for you. TrackingPoint provides a complete, off-the-shelf solution to making hits at extended ranges — at a price.

HEAD TO HEAD

One shortcoming was made apparent when we tested the TrackingPoint 750 series rifles in Colorado. We set up on a shooting bench, with multiple steel targets set out at 450, 750, and 800 yards. We gave a 750 series PGF .308 bolt gun to three shooters of varying levels of experience, ranging from

complete novice to expert. Because the targets were set out on the side of a mountain, the shooters were forced into a compromised position, “floating” the buttstock in order to gain enough elevation to engage despite their bipod legs being fully extended.

As a control, we used a shooter equipped with a Colt LE901, Leupold Mark 4 3.5-10x40mm scope, Bushnell 1 Mile laser rangefinder, and Winchester 168-grain match ammo — low tech and fairly low budget in comparison to the \$12,500 price tag of the TrackingPoint gun. The shooters were then told to engage their targets as quickly as possible. While the gas gun had an advantage when it came

to jacking rounds into the chamber, this was offset by the PGF's greater accuracy. Plus, as any designated marksman will attest, bolt guns are just plain easier to hit with, as they're more forgiving of poor shooting form and compromised positions, such as we faced here. We didn't expect the results we got, with the shooter using the “steam-powered” equipment beating all three of the guys equipped with the TrackingPoint system. On reviewing video shot of the session, we noticed a number of factors in play.

Firstly, due to the sub-optimal shooting position, many of the TP shooters' shots missed high, as the rifle recoiled and shifted position fractionally while

Note zoom (silver) and tag (red) buttons on trigger guard. Mode switch is mounted on top of the sight, along with a secondary zoom control.



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The Sight-Pro Body is machined from aircraft grade billet aluminum and hardcoat mil-spec anodized. Pusher block and thread lead screw are CNC machined from carbon steel. All support bushings and clamp screws are CNC machined from aircraft grade stainless steel. All shoes are engraved with model number for quick reference.

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the bullet was still traveling down the barrel. The Colt shooter also missed high initially, but was able to quickly compensate on his next shot by holding below the target. He was able to do this as he could see his bullet impacts through the scope and adjust accordingly. This brings up the biggest problem currently faced by the TP system — namely, the difficulty the shooter has in spotting his own shots. Under recoil, the display image shakes so much that seeing bullet strikes is almost impossible. So if you miss with the first round, you'd better have a spotter to make your corrections. Remember that with the TP, you're looking at a display screen, like a video camera — you're not looking through glass at the target as with a traditional optic. The system's ability to stream the scope's image via Bluetooth to the spotter's mobile device is a huge advantage when it comes to target identification, but in order to call corrections, the spotter needs to use conventional glass, otherwise he faces the same problem as the shooter.

Interestingly, in later testing we found that the AR variant least affected by this condition was also the most powerful. As noted in RECOIL Issue 14, the NEMO .300 Win Mag features a very effective brake and buffer system, which results in a straight-back push, allowing the shooter to see his strikes at least 50 percent of the time.

As ranges increase, the greatest factor in connecting with a target is wind. Until DARPA delivers its much-anticipated wind-monitoring system, we're all stuck with having to make corrections for wind speed and direction the same way our ancestors did. Learning to read wind is one of the most difficult aspects of long-range marksmanship, and there are no shortcuts. In order to correct for wind drift on the PGF, the shooter must use a rocker switch located on top of the



sight to input a mph value, which is displayed on the screen. If there's say, a 10 mph, half value wind (i.e., one that's blowing from 45 degrees, rather than 90 degrees from the bullet's path) then the shooter must input a value of 5 mph. Simple enough, but being able to accurately estimate the wind's value across the bullet's entire arc is one of those skills that only comes from putting rounds downrange.

It's perhaps instructive that in all of the videos out there of the system being demonstrated on a

range, wind value is always input by, or under the direction of, a TrackingPoint representative. Despite any claim to the contrary, complete newbies just aren't going to be able to make wind calls that will allow them to hit consistently at 1,000 yards right off the bat.

Will a PGF enable an average shooter to hit more targets at greater range? Absolutely, no question about it. But any claim that a novice can pick up a PGF and immediately become the modern-day incarnation of Simo Haya is unadulterated horseshit.



The RIANOV Eagle's computer attached beneath the scope is dwarfed by its control box, which houses the CR123 battery. This combo of carbine, optics, and computer is nowhere near as feature-rich or smoothly integrated as the TrackingPoint, but is more versatile. The device on the handguard is the RAPTAR rangefinder.

CUT-PRICE CONTENDER

TrackingPoint's greatest selling point — that it offers a complete, off-the-shelf system — is also a potential weakness to the customer who wants increased hit probability across multiple weapons platforms. If you've got say, an AR-10, a couple of precision bolt guns, and a SCAR 17, then you might find utility in a system that could be transferred between guns. You'll be pleased to know then, that such a system exists — to use a careworn and hackneyed phrase, the Eagle has landed.

The RIANOV Eagle costs \$750, weighs 1.7 ounces, attaches to any scope or rail, and provides a firing solution in any conditions based on its full complement of environmental sensors. This firing solution is output to a tiny display showing both windage and elevation corrections, which the user then either dials into a conventional scope, or in the case of a Horus reticle, simply holds on the target. In use, the shooter first determines the range to target. This can be done either by means of a weapon-mounted rangefinder which outputs to the computer,

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or the shooter can input data manually from other sources, such as a hand-held laser rangefinder (LRF), range markers, or previous engagements. To do this, a remote controller attached to the computer via a cable is used, and the shooter toggles through modes and values using basic commands such as up, down, left, and right. The control box also houses a CR123 battery, powering the unit for up to a year.

With our very first shot using the system, we were able to make a hit on a torso-sized steel target, using a .308 Win Remington 700 at 1,300 yards — well beyond the transonic range of the round. The military version of the Eagle accepts input from either an L3 STORM or Wilcox RAPTAR rangefinder, and it will calculate a firing solution out to the maximum ballistic range of any weapon system, be it a .17 HMR varmint gun or a 120mm cannon, should you have one lurking in your gun safe.

To maximize the ability to use the Eagle on multiple weapon systems,

The RAPTAR range-finder shown here costs more than the carbine, scope and computer combined. Think there's a gap in the market for a less expensive version?



Eagle display gives a firing solution for both windage and elevation, based on environmental sensor suite, twist rate, BC, and velocity. We used it on this Colt 901 to ring steel at up to 1,200 yards.

the user first inputs basic data such as caliber, ballistic coefficient (BC), muzzle velocity, rate of twist, height over bore, and zero distance. Up to 16 different data sets can be stored, and once set up, the unit can be swapped at will between firearms. We used it on both our LE901 test mule and the aforementioned Rem 700, and found it takes longer to zero the rangefinder than change over the computer.

One hugely valuable feature is the ability to “true” the ballistic solution to the weapon. In most commercially available ballistic computers, if you discover that your rounds aren’t hitting where the program says they should, you might wind up tweaking an input slightly (usually the bullet’s BC), in order to get a result that mirrors reality. This is a Band-Aid solution that only works accurately at one particular distance. The Eagle instead allows the user to bend the ballistic curve to match real-world results, giving a much better model, particularly at extended ranges.

Compared to the TrackingPoint, the Eagle is much more basic in terms of its user interface, and engagement times are a little slower due to the need to manually input data. The control box

is a bit clunky and flops around at the end of its cable, unless Velcroed to the stock. It can, however, accommodate any kind of projectile weapon, any caliber, and any load. Presently, the available rangefinding options are extremely expensive due to their military origins and additional functionality — a RAP-TAR costs around \$6,000 and offers a visible laser, IR target designator, and floodlight. If a rangefinder company were to introduce a simple, rugged rail-mounted LRF that could output to the Eagle via either cable or Bluetooth, this combination would be virtually unbeatable. Bushnell, are you listening?

Ballistic computers of all types are starting to make inroads to the long range scene, and our overview here is by no means comprehensive, with several other small companies providing their own take on the problem of hitting targets way out there. As the technology matures and trickles into other products, we predict that in a few years it will be commonplace to see chips integrated into conventional optics. We know of a few major companies who are well down the road when it comes to placing computers into their glass, and we’ll bring you updates as we get them. ■



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CALIBER:
7.62mm
BARREL LENGTH:
18 inches
MAGAZINE CAPACITY:
20 rounds
WEIGHT (UNLOADED):
14.6 pounds
MSRP:
\$14,995

TRACKINGPOINT PRECISION-GUIDED 300 WM SEMI-AUTO

CALIBER:
.300 Win Mag
BARREL LENGTH:
22 inches
MAGAZINE CAPACITY:
14 rounds
WEIGHT (UNLOADED):
15.6 pounds
MSRP:
\$18,995
URL:
www.tracking-point.com

In October, TrackingPoint introduced three models of semi-auto rifles, based on the AR platform. The entry-level gun is a Daniel Defense-based AR-15 with a price tag of \$6,000. Despite an MSRP of less than half its brethren's, the optics and electronics suite is exactly the same. Jumping up the ladder, the 7.62mm NATO version is based on the well-respected LMT product, which in TrackingPoint guise retails for 15 grand. The bigger caliber provides the shooter with a greater maximum range — software limits each PGF to stay within the capabilities of the laser rangefinder which, given restrictions placed on its output by the FDA, is capped in this case at 750 yards. The mack daddy of the group starts out life as a NEMO .300 Win Mag, which then gets the TrackingPoint treatment to emerge as an 800-yard capable precision rig. You may well think that 800 yards is barely stretching the legs of the round, and you'd be right. Hopefully, improvements in rangefinder technology will bump this up to at least the transonic range of each cartridge. But for now we're stuck at the distance at which an accurate range measurement can be made on a non-reflective target.

In comparison to previous models, the AR lineup's scopes are significantly more

compact and streamlined. Another significant change is that a second zoom control has been placed on the trigger guard. As a result, engagement times are further reduced as the shooter no longer has to come out of the scope to first find the target and then zoom in to pick a tag spot. Rechargeable, replaceable batteries are housed in the buttstock, which outwardly resembles Vltor's products, but is non-adjustable.

In keeping with the ethos of a complete, ready-to-go system, each gun arrives pre-zeroed from the factory, with no user-serviceable components (apart from normal weapon cleaning duties — there's no getting away from that). In order to maintain zero throughout the weapon's service life, a barrel reference device similar to that employed on an M1 Abrams main gun takes the place of a front sight.

Wearable technology is the latest Big Thing to emerge from tech titans such as Apple and Samsung, so it should come as no surprise that TP is getting in on the act with a heads-up display mounted in a pair of sunglasses. With this rig, multiple people can stand around a PGF and see exactly what's going on in the scope, without the need to carry an iPad or tablet. It also permits a shooter to engage from cover, without exposing himself to the target.

Apps are another area of development, two of which are launching to coincide with the arrival of the AR models. One, a prey finder app, allows the shooter to pinpoint the location of downed game based on data used to make the shot. Each PGF is equipped with a GPS unit, so by extrapolating from the shooter's location, distance to target, and direction of the shot fired, the impact point can be calculated in a process no doubt familiar to anyone who's ever called in a fire mission.

We tested several pre-production versions of the guns and found that they did indeed perform as advertised when it came to banging steel in the Arizona desert — but being advanced prototypes also suffered from a couple of glitches. Although we're confident the problems will be addressed before launch, it's worth mentioning that when shooting in 102-degree heat and bright sunlight, the black finish applied to the sight unit caused some overheating. As a result, the electronics package became buggy and failed to range a 700-yard target, as well as locking up the image on a wearable heads-up display. Apart from minor software glitches, the guns themselves proved to be accurate, providing dependable fire solutions out to the maximum advertised range.

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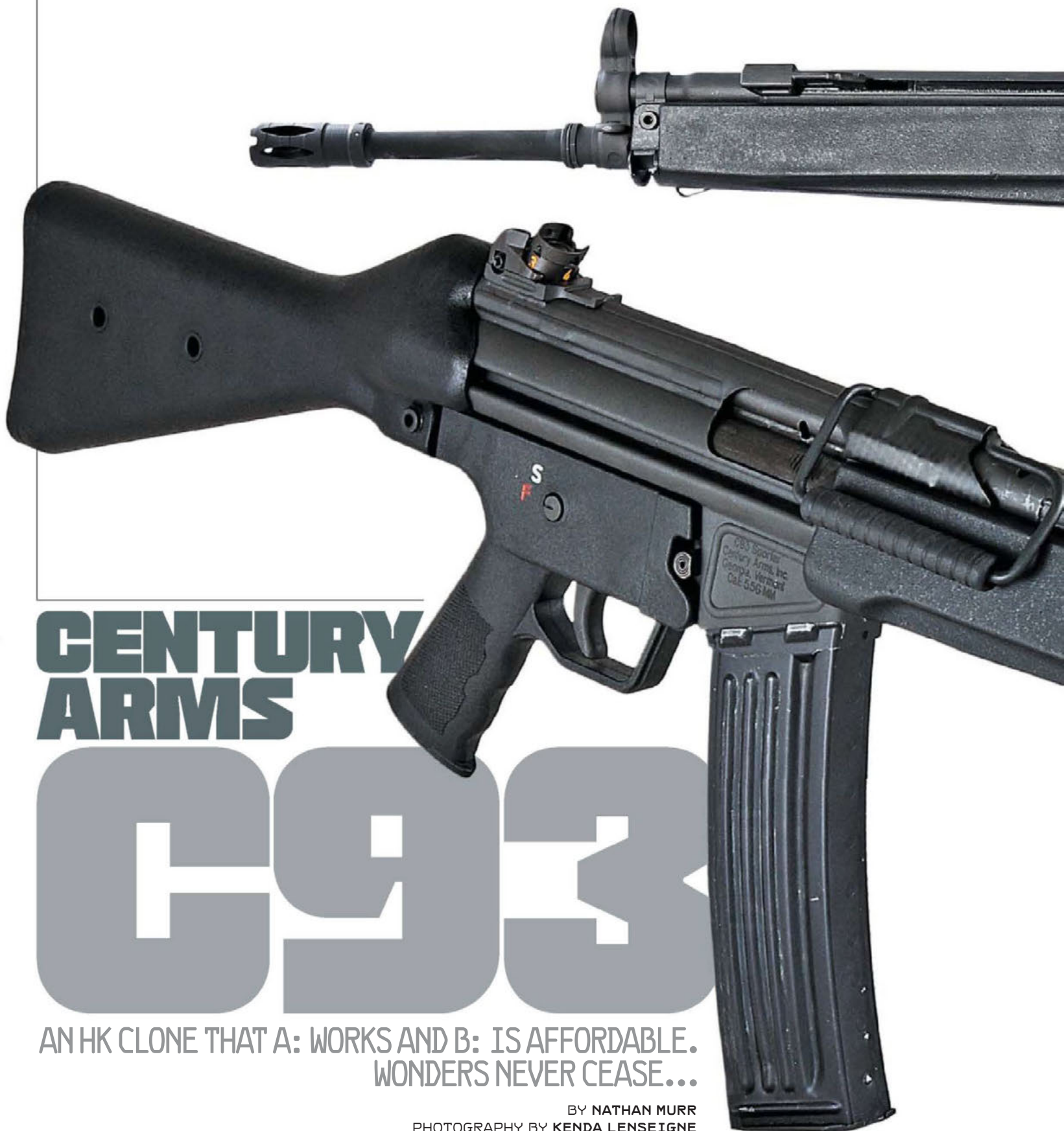
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**CENTURY
ARMS**

CG3

AN HK CLONE THAT A: WORKS AND B: IS AFFORDABLE.
WONDERS NEVER CEASE...

BY NATHAN MURR
PHOTOGRAPHY BY KENDA LENSEIGNE





A real-deal 5.56mm HK rifle is regarded as a jewel in any collection, and for that reason you don't see too many of them actually getting used at the range. For a very long time, Heckler & Koch dominated the semi-auto rifle market and for several decades were widely regarded as the choice of professionals.

During the 10-year-long "assault weapons" ban starting in 1994, our nation had to endure import restrictions that few shooters seem to remember these days. Although domestic manufacturers quickly found

ways to work around these draconian laws, HK's failure to adapt their long-guns meant that they slipped into a perception of being simply pistol makers in the U.S. market. In its absence, the AR-15 enjoyed a rebirth that continues unabated to this day. The C93 is essentially a Heckler & Koch HK94 clone, but is significantly more affordable than one of the pre-ban Kraut rifles.

This writer's first semi-auto centerfire rifle happened to be a HK91, purchased while still barely a teenager. Coming of age in the 1990s, we grew

up believing in the decades old design, saving long and hard to purchase the big 7.62x51mm rifle. Waiting for the shekels to accumulate gave plenty of time to focus on the four decades of history and development of this particular design — and how Obendorff's engineers shaped the way modern firearms are manufactured.

EVERYONE KNOWS THEY MAKE GOOD STUFF...

The Second World War did much to streamline and advance firearms technology, with its progress evident in most weapons designed today. Both Axis and Allies began to build firearms out of stamped steel, lighter-weight materials, and even composites. Intricately machined, mechanically complex firearms did not fit well with any nation's

war effort — they needed guns immediately, and plenty of them. The Germans, more so than any other army, began to incorporate lightweight stamped-steel components into their designs. Enjoying success with the MG 42 machinegun, composed mostly of stamped and welded parts, they continued to utilize this technology in other small arms.

The first true assault rifle, a light-weight select-fire weapon firing an intermediate cartridge, burst onto the battlefield as the StG 44 — and its design and function would prove to be a pivotal breakthrough in firearms and military tactics. After the war, many countries began to replace their aging bolt-action service rifles with semi-auto and select-fire 7.62x51mm battle rifles, influenced by the StG 44's success. America chose the M14, while most other NATO nations gravitated to the FN FAL. Interestingly, while the Free World seemed obsessed with the full-power 7.62mm NATO round, communist countries pursued the softer-shooting intermediate M43 7.62x39mm cartridge with the adoption of the SKS and AKM-47, which was closer to the original German design.

With Germany being divided by the Cold War, the West German army sought a battle rifle of its own. A team of German engineers assisted by Heckler & Koch helped utilize their nation's war-time experience to develop the CETME rifle for the Spanish military.

C93 bolt and carrier were sourced from Malaysian parts kits and show minimal wear under the gunk from our range session.



Further development of this rifle led to the West German Army's purchase of an improved, domestically produced G3 7.62mm battle rifle.

The G3 became known for its reliability (and heavy recoil) due to its simplicity and unique, roller-delayed blowback operating system. This system employs a two-piece bolt consisting of a bolt head containing a pair of rollers and a bolt carrier. Upon firing, the cartridge case pushes back on the bolt head, and the two cylindrical rollers within it are cammed inward by inclined surfaces of the barrel extension. This imparts a rearward

motion on the locking piece, which also propels the bolt carrier rearward. Because of the resistance needed to overcome the combination of camming surfaces on the barrel extension and locking piece, this delays the movement of the bolt head relative to the bolt carrier, which moves backwards at four times the speed of the bolt. As the bolt carrier and locking piece move to the rear, the rollers compress entirely into the bolt head, clearing the locking recesses of the barrel extension. This allows rearward travel of the bolt assembly, starting the extraction and feeding cycles.

Note serrations on bolt carrier visible through ejection port. These are used as a forward assist.



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Unlike, say, the Stoner direct-impingement system found in the AR, the HK system starts to move while under extreme pressure. Because of this, the chamber has a series of flutes machined into it which cause combustion gasses to “float” the case away from the chamber walls. This increases extraction reliability and prevents the fired case from sticking — the design is so successful that it’s used in virtually all the HK legacy long-guns and clones, including the C93 rifle reviewed here.

THE DRUNKEN MONKEY ENTERS REHAB

Our test rifle was new from the factory and, unfortunately, came with only one 40-round magazine. The Century Arms C93 is essentially a domestically produced HK93, using newly made parts as well several that are imported from cut-up, complete used rifles. Our sample utilized a bolt and carrier sourced from a rifle that had previously seen service in the Malaysian army — despite this, it appeared to have very little wear. U.S.-made HK clones have always had mixed reviews when it comes to reliability, depending on the quality of craftsmanship that went into their manufacture.

Over the years, Century has developed a reputation for hit-or-miss quality control. Some of its product line has performed well, while other examples have been utter garbage. So it was gratifying to see that, in this case, the C93 at least looked decent with a uniform, deep parkerized finish, correctly installed front-sight tower, and lack of mold flashing on the pistol grip.



If you can drive out two pins, you can field strip an HK. Hose out the locking lug recesses with brake cleaner, and you’re good for another couple thousand rounds.

Note carrying handle and HK sling loop on forend, anachronistic holdovers from the ’70s.

One of the first things we do when picking up a newly minted example is to grab a set of feeler gauges and check the gap between the rear of the bolt head and the carrier. This dimension is critical for reliable extraction — too little and the gun will suffer stovepipes. This one clocked in at 0.018 inches (right at the sweet spot), and it remained there after firing 250 rounds. After field stripping the carbine and inspecting the condition of the rest of its components, we were pleasantly surprised by the quality of the welds evident in this particular build. So we applied a little gun oil to the rollers and locking piece, then headed to the range.

Weighing in at 8.2 pounds and chambered in 5.56mm/.223, the rifle proved to be light in recoil and easy to control during long, rapid strings of fire. The C93 features a 16.25-inch barrel with a 1:9 twist, making it work well for all but the longest projectiles. Our testing started by zeroing the rifle at 100 meters, using the HK-style iron sights. This setup comprises a simple drum-type rear sight, which has a V cut for 100 meters and peep-style settings for 200, 300, and 400 meters. By zeroing at 100 meters using the 100-meter



40-round magazine is very noticeable when shooting from prone. Turkish manufactured polymer 30 round mags are available, though not cheap.





Unlike its 7.62mm NATO big brother, the C93 is svelte and easy to manage. However, it still kicks the empties into the next county.

setting, you effectively calibrate the bullet drop for the other range apertures. Since the C93 uses sights from a parts kit, we had to ponder for a while about the best way to properly zero this rifle. Armed with the knowledge that the HK33 line was developed in

the 1960s and its commercial import brother was discontinued around the time 62-grain green tip was becoming popular, we decided to use 55-grain ammo to calibrate this machine. The M193 55-grain full-metal-jacket (FMJ) round was NATO standard back then,

German digits must be longer than those of puny Americans. C'mon guys, how hard would it be to either A: install an extended mag release or B: put it in the right place from the get go?



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- The retention device is instinctively released by the middle finger once a proper shooting grip is acquired
- Low-cut and compact design makes concealment easy



Thumb Operated

- Automatically locks weapon in place once holstered
- The retention device is instinctively released by the thumb once a proper shooting grip is acquired

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Both systems offer an intuitive and smooth draw that unlocks the retention device while drawing the handgun. Select the model that's right for you – either middle finger or thumb – to de-activate the retention mechanism, leaving the trigger finger in its natural position against the frame of the gun until ready to shoot.

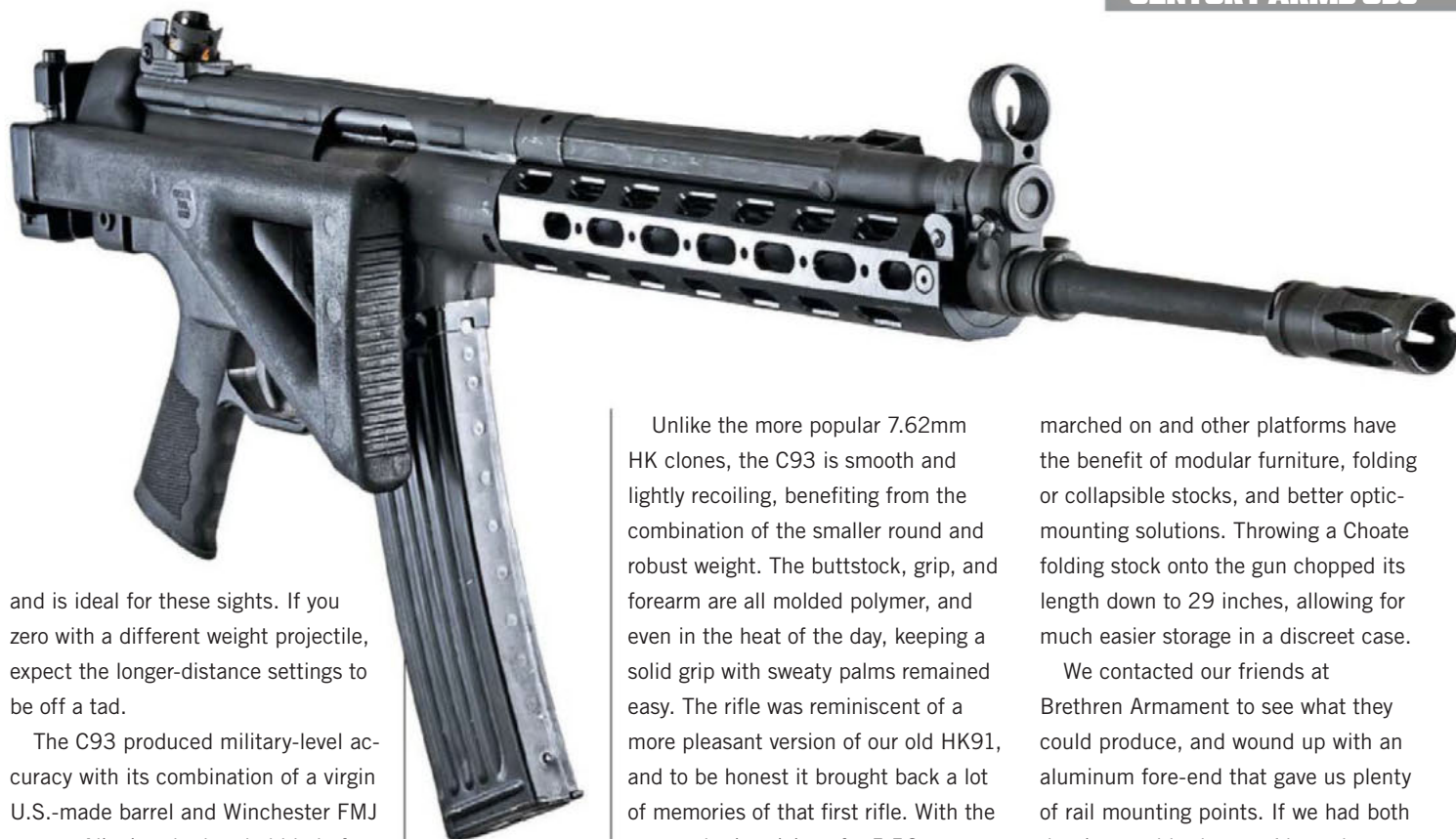
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and is ideal for these sights. If you zero with a different weight projectile, expect the longer-distance settings to be off a tad.

The C93 produced military-level accuracy with its combination of a virgin U.S.-made barrel and Winchester FMJ ammo. Aligning the hooded blade front sight with the rear V, we turned in groups averaging 3 to 4 inches at 100 meters — not great, but not shabby for fairly coarse iron sights and a 9-pound trigger. Once dialed in to a proper point of aim and point of impact, we rotated the rear sight to the 200-meter setting for the rest of testing — it's easier for most shooters to accurately engage their target using a rear peep aperture, and the slightly higher impact is barely noticed.

Unlike the more popular 7.62mm HK clones, the C93 is smooth and lightly recoiling, benefiting from the combination of the smaller round and robust weight. The buttstock, grip, and forearm are all molded polymer, and even in the heat of the day, keeping a solid grip with sweaty palms remained easy. The rifle was reminiscent of a more pleasant version of our old HK91, and to be honest it brought back a lot of memories of that first rifle. With the stratospheric pricing of a 5.56mm-chambered HK93, this rifle would be great for anyone who wants the HK experience without breaking the bank. As a range toy or reliable truck gun, it's priced around 700 bucks and shoots affordable 5.56mm, so it would be a great addition to anyone's inventory.

Despite previous shortcomings experienced with Century Arms, the C93 is a lot of gun for the money. It does, however, suffer from the shortcomings of a 40-year-old design — time has

marched on and other platforms have the benefit of modular furniture, folding or collapsible stocks, and better optic-mounting solutions. Throwing a Choate folding stock onto the gun chopped its length down to 29 inches, allowing for much easier storage in a discreet case.

We contacted our friends at Brethren Armament to see what they could produce, and wound up with an aluminum fore-end that gave us plenty of rail mounting points. If we had both the time and budget, we'd get them to install a Picatinny rail on the receiver to allow us to bolt up a scope, then rework the trigger to around 4 pounds. Once completed, this would produce a very competent rifle with stellar reliability, while really standing out from the crowd. In a sea of AR-15s, the C93 offers something a bit different while using the same ammo. And for someone bored with the same old same old, this is an excellent reason to get out to the range. ■



CENTURY ARMS C93



URL
www.centuryarms.biz



MSRP
\$850



CALIBER
5.56mm NATO



BARREL LENGTH
16.25 inches



OVERALL LENGTH
37.25 inches



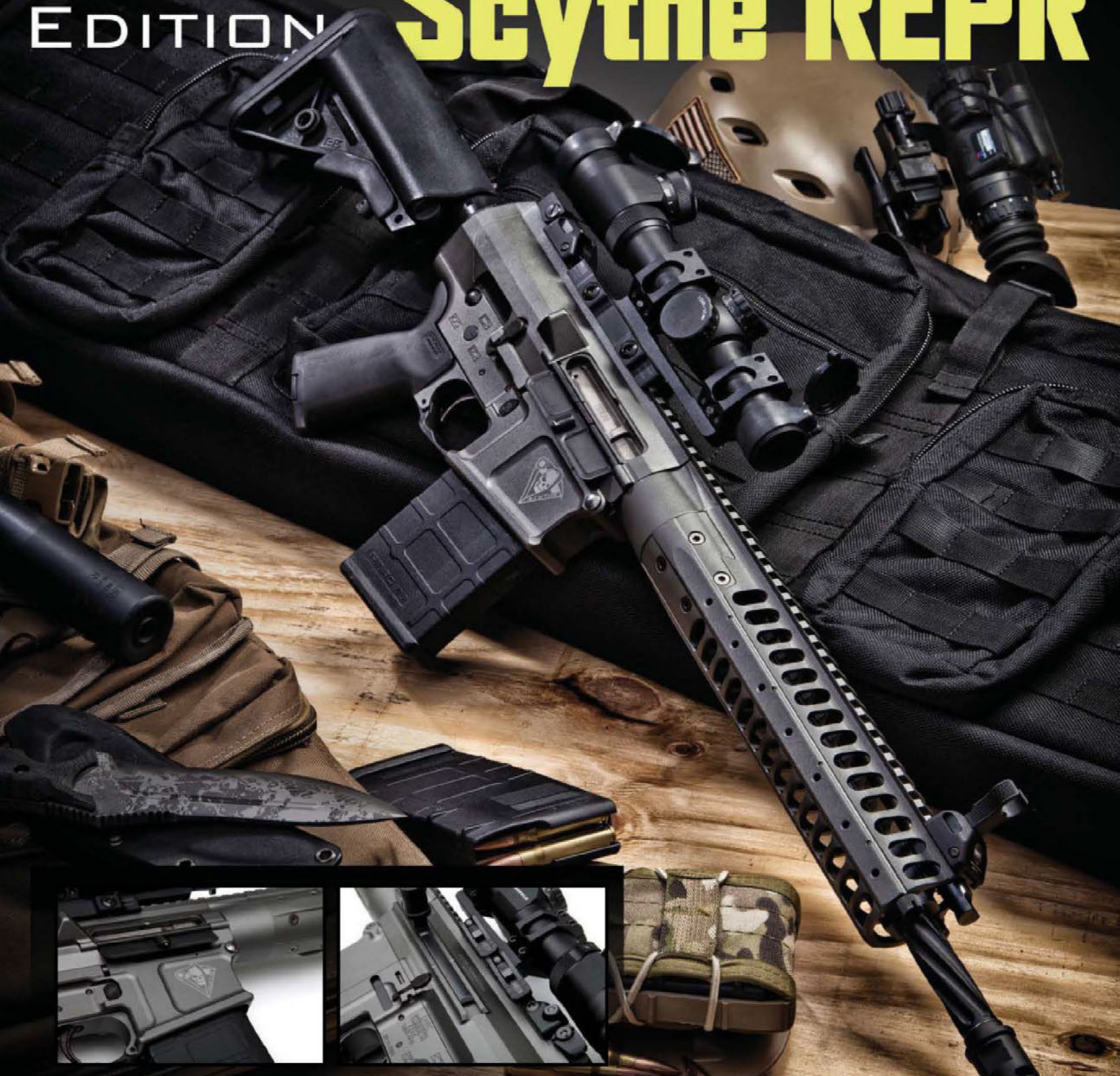
MAGAZINE CAPACITY
40 rounds



WEIGHT (EMPTY)
8.2 pounds

LIMITED
EDITION

Scythe REPR



TUNGSTEN SCYTHE REPR

- » 7.62x51mm NATO / .308 Winchester
- » 14.7" Spiral Fluted Barrel w/ SureFire Brake
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Photos by Jorge Nuñez

SHOTGUN WEDDING

MOSSBERG AND MAGPUL: SOULMATES

BY MIKE SEARSON

PHOTOGRAPHY BY SHINNOSUKE TANAKA





Some things naturally go great together — sushi and sake, Jack Daniels and Coke, Kate Upton and a two-piece — so much so that it's hard to imagine one without the other (well, except for that last pair). Now, there's a new winning combination out there: Magpul and Mossberg.

Magpul has long been a leader in the industry with its economical, effective, and ubiquitous magazines, buttstocks, and accessories for the AR-15 platform. The company then

turned its sights toward the tactical shotgun market and has been producing stocks, fore-ends, and sling swivels for some of the more popular shotgun designs, such as the venerable Remington 870 and the Mossberg 500 and 590 series.

Through the hard work of firearms distributor RSR and one of its buyers (Caleb Siedlecki), six of Mossberg's most popular tactical models are getting the full Magpul treatment at the factory.

UNFAIR ADVANTAGE?

The first thought that might come to mind for a lot of tactical shotgun owners is, "So what?"

Buttstocks and fore-ends for most pump shotguns are fairly quick and easy to install. Back when the only modification choices for an AR-15 were A1 sights versus A2 sights or fixed stocks versus collapsible stocks, shotgun owners were already adding synthetic stocks, pistol grips, side-saddle shell carriers, and all kinds of



tactical goodies — with nothing more than a screwdriver or the occasional metal punch. They breathed new life into old hunting guns that were lingering in gun stores and pawn shops across the United States. They were some of the easiest firearms to customize at home. (Editor's note: They're still easy to personalize. Check out RECOIL Issue 10 to see how we converted an old Remington 870 into a \$600 home-defense shotgun.)

But according to some advocates and analysts, there's a slight problem with this in the legal realm: these shotguns are altered from their factory configuration. In the event of an even slightly questionable self-defense shooting, the tables could be turned on the owner of the shotgun by an

The ribbed Magpul fore-end provides an assured grip while handling this Mossberg pump-action.

overzealous prosecutor. "He altered his grandfather's duck gun into a weapon of mass destruction and was looking for a fight," a clueless legal shark might claim.

Many dismiss this concern, and it could be a rare scenario depending upon the jurisdiction in which you live. Nevertheless, it's something to consider when protecting yourself from the legal ramifications of lawful self-defense. One solution: Don't give them an excuse.

There are other reasons for buying a factory-ready shotgun such as these. Most firearms enthusiasts like to trade-in and upgrade to get something better down the line, or at least something else.

Some buyers know this and will start low balling when they see non-original parts on a firearm. Even if your pistol shipped from the factory with hard rubber grips, they will try to ding you for replacing them with custom carved mother of pearl, inlaid with 24-karat gold. Let them try that when your piece is all original and from a limited run, such as the shotguns that RSR is offering.

The two parts common to all these models are Magpul's fore-end and buttstock, made from the polymer that Magpul is known for.

The fore-end is ribbed on the bottom to allow for a positive grip and has down-turned lips front and rear that act as hand stops. The goodness doesn't end there, as the sides of the fore-end are slotted to accept Magpul's rail sections so that the shooter can easily add a laser or flashlight if so desired.

Then there is the buttstock, which offers a grip angle somewhere between a traditional shotgun grip and a pistol grip. The stock includes a number of spacers that the shooter can use to adjust the length of pull, a real benefit given the importance of fitting shotguns to the shooter. Additionally, if you run your shotgun while wearing a vest or plate carrier on occasion, you can simply remove a few spacers and your length of pull will remain consistent.





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THE TEST

RSR supplied us with two shotguns for evaluation: a fully loaded 590A1 and a Model 500 with a breacher barrel.

Rather than using a screw-in breacher choke tube that can become damaged when subjected to hard use, the dedicated breacher barrel offers a level of strength and security when taking down a doorjamb or some other object requiring the services of a scattergun. The barrel can double as a CQB (close-quarter battle) device, as the crenelated end makes for a vicious jab similar to a bayonet lunge. This writer is a personal fan of this technique, having grown up in Irish bars in New York City and seen first-hand more than one bloke put down from the quick thrust of a pool cue to the face — the breaching tool would be far more effective in this capacity.

The 590A1 is the same model that was adopted by the USMC Security Forces in the early 1990s and has the thicker, more robust profile barrel for CQB in the tight quarters of a ship. The magazine tube holds nine rounds, and the sights are the ever famous ghost-ring sights, allowing it to be fired more like a rifle than a typical shotgun with a bead sight.

The 590A1 should be called the “kitchen sink model,” as it is loaded

with everything a growing boy needs: 20-inch barrel, the aforementioned ghost-ring sights, a bayonet lug, the Magpul stock and fore-end, and Magpul sling loops. And if the ghost-ring sights aren't good enough for you, there's an accessory rail atop the receiver to add a prismatic scope or red-dot sight.

As we mentioned earlier, adding rails to the fore-end allows the shooter to install lights, and in the case of the 590A1, this is essential as many white-light fore-ends offered by various flashlight companies require the bayonet lug to be ground off to allow the shotgun to go into battery. We may not be using our 590A1 to storm the beaches of Normandy these days, but why ruin a perfectly good bayonet lug when you don't have to?



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- Full Power - 543 Lumens @ 2.5 hr. runtime
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Also available
with plain-bezel.



in a heartbeat. If you have been on the fence about buying a true combat shotgun for home defense, duty, deployment, competition, or just to have, then this is the one you have been waiting for. Our only complaint is, as always, Mossberg's lack of a screw-in choke system from the factory to really make this shotgun more versatile.

The breacher model has the badass looks, but was a bit of a disappointment at the range. As a Marine infantryman who was too young to legally purchase a sidearm from a store, this writer's only option at 18 was to pick up a pistol-gripped Mossberg. It was



On the range, the 590A1 was a performer. Magpul's ergonomics on this shotgun bridges the gap between a traditional stock and a pistol grip that might take an experienced shotgunner some getting used to, but is easily adapted to by more casual users. While shooting Federal's reduced-recoil 00 buck shot, we found patterning the gun to be extremely easy with the ghost-ring sights. The weight of the shotgun, coupled with the ergos of the buttstock and the spacer, greatly reduced felt recoil.

We wish we could say the same for the breacher model. Numerous failures to fire due to light primer strikes plagued us at the range with this scattergun. The culprit may have been a weak hammer spring or a headspace problem. The one salvation might be that the breacher barrel could be used

to strike an assailant during a confrontation if the shotgun fails to fire. We realize this could have been an isolated problem on a single sample shotgun, but it's all we had to work with.

A FORMER MARINE'S PERSPECTIVE

These examples are only two of the six models that RSR is offering. Unfortunately, it could not get us all six, so we went for the top of the line and the odd man out.

The 590A1 comes loaded for bear, and if we didn't already have an earlier loaded model in the safe (with an Insight fore-end, sidesaddle shell carrier and Speed Feed stock), this author would have scooped this one up

lightweight and easy to carry on deployment as a backup to the M16A2. This experience during such formative years led to a real preference for breacher types of shotguns with pistol grips. We can see this one serving a dual role for an officer needing to breach doors while still having a reliable long-gun — if the light-strike issues are addressed.

It really looks very aggressive, and it might be worth it to take one to a trap shooting range to see how long it takes for you to get kicked out...or just piss off the geezers with their \$14,000 single-shots. They certainly won't want to rest the muzzle of this one on their golf shoes. ■



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**MOSSBERG
590A1 MAGPUL 9-SHOT**




 **MSRP**
\$855

 **CALIBER**
12-gauge

 **BARREL LENGTH**
20 inches

 **OVERALL LENGTH**
39.5 inches

 **MAGAZINE CAPACITY**
9 shells

 **WEIGHT (UNLOADED)**
7.25 pounds


 **URL**
www.mossberg.com
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SPEC BOX

**MOSSBERG
500 MAGPUL BREACHER**




 **MSRP**
\$655

 **CALIBER**
12-gauge

 **BARREL LENGTH**
18.5 inches

 **OVERALL LENGTH**
38 inches

 **MAGAZINE CAPACITY**
6 shells

 **WEIGHT (UNLOADED)**
7 pounds

 **URL**
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{ THE QUIET PROFESSIONAL }

DESPITE SCALING SOME OF THE HIGHEST PEAKS AS AN ADVENTURER AND EARNING TOP MILITARY ACCOLADES AS A DELTA OPERATOR, JIM SMITH HAS SHIED FROM THE LIMELIGHT. RECOIL COAXES HIM OUT TO REMINISCE AND TALK ABOUT HIS CURRENT ROLE AS A PREMIER INSTRUCTOR OF INSTRUCTORS.

BY MIKE LANDERS

PHOTOGRAPHY BY Q CONCEPTS

Throughout history, the term “Spartan” has been synonymous with the concept of the ideal warrior. The fighting spirit ethos derived from this ancient Greek people has long been admired — so much so that the word has transitioned from noun to adjective within the modern lexicon.

In contemporary military context, few deserve that adjective more than Jim Smith and his brethren. As a former U.S. Army Delta operator, he’s served his nation admirably around the globe and been highly decorated for his courage and tenacity. Much like the children of Sparta, Smith had an affinity for overcoming tough challenges at an early age. As a kid who preferred *Field & Stream* over *Mad* magazine and backpacking in the Sierra Nevadas over trading baseball cards, a young Jim Smith was far more interested in pushing his own limits than he was with the trivialities of teenage life. “Anything difficult, hard, and challenging — that’s what I wanted to do,” Jim says a few decades later in his stately Texas home.

This explains not only the core of the man himself, but also a few of his choices in interior décor. A variety of substantial hunting trophies adorn his home office, and adjacent to that room, the home’s calming hues of brown meet a framed picture of the snow-capped Matterhorn in

the Pennine Alps. While the only Matterhorn most of us have conquered resides in the land of Disney, Jim has actually scaled the real mountain itself, along with Mont Blanc, The Eiger, and a handful of other substantial peaks. He’s also tackled the grueling Haute Route between France and Switzerland.

If these are the types of activities Smith engages in for fun, you can imagine the boundaries he’s been willing to push throughout his military career. It’s no wonder, then, that he’s among the few Army enlistees to have worn the Ranger tab, become a Special Forces soldier, and serve in the elite counter-terrorism unit called Delta.

Perhaps the most celebrated of Jim’s military service exploits are the Silver Star and the Purple Heart he earned as a sniper during the Black Hawk Down incident in Mogadishu, Somalia. A successful book and movie by the same name were released and subsequently pushed the incident to the forefront of mainstream consciousness, though Jim is quick to point out that both have an aspect of Hollywood error. “There are definitely some wrong and misleading aspects to the book and the movie,” Jim cautions. “They got some crucial things wrong.”



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Jim Smith's well-decorated military career has allowed him to successfully transition into becoming one of the most sought-after firearms trainers in the industry.



Though seriously wounded, Jim survived the incident (and many other close calls) and has gone on to utilize his military experience the best way he knows how — by training others. “My wife told me, ‘Jim, you were probably saved in Somalia just to do what you do,’” Jim says of his foray into the instructional world. “I think she was right.”

Since his retirement from Delta (called simply the Unit by those involved with it), Jim has formed Spartan Tactical, a combat-focused training organization that has been a huge asset to military, federal, and civilian students and instructors. He’s a certified FBI combatives instructor, federal firearms instructor, and a SOTIC-certified sniper instructor, providing a variety of training for all aspects of modern warfare and firearms proficiency. The transition to instructor has been a relatively easy one in Jim’s eyes.

“Being from my unit means that you are generally as much of a trainer as you are a mentor,” he says. “I think that has to do with the culture of learning that comes from Delta, as well as the fact that we are all professionally selected.”

Jim has also written curricula for several branches of federal and military instruction. He helped develop the Federal Air Marshals program, taking that organization to elite levels following the September 11, 2001, terrorist attacks.

The crown jewel of Spartan Tactical comes in the form of Jim’s natural terrain training facility, located on a sprawling 17-square-mile complex in a remote area of Texas. The complex gives Jim the freedom to host instruction for just about any aspect of modern warfare and combatives, and it also plays host to the annual Remington Fallen Brethren Three Gun Challenge. “Our three-gun match has grown to become one of the biggest three-gun events in the world,” Jim says with a smile. “Being an instructor has given me the ability to mold other instructors and students into better versions of who they are, and hearing

feedback from their own accomplishments and achievements keeps me constantly motivated and inspired.”

Spending an afternoon with the quiet professional, one can’t help but be motivated and inspired, too. Recently, Smith was kind enough to invite RECOIL into his home and his training complex. He shared how his mountain-climbing skills helped him join one of the most exclusive Special Mission Units in the world, debunked some of the falsehoods of the *Black Hawk Down* book and subsequent movie adaptation, and expressed why he’s so passionate about teaching the next generation of modern day Spartans.

RECOIL: What made you decide to go into the Army?

Jim Smith: I was going to a junior college in Southern California, and it was like high school all over again. I hated it. I wanted to get out and do something. As a kid in San Diego County, I grew up shooting. We used to be able to ride motorcycles for literally 50 miles with no fences in sight. We’d always be outside, out with a .22. Once I was 5, my dad would take me





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Tools of his Trade: Jim took the time to discuss his consulting duties for Leupold, while showing us one of his collaborations in all of its mounted glory.

A career of multiple deployments and hunting expeditions has left Jim with a well-inventoried workshop.

up into the Sierras every year to go backpacking. Back then you couldn't buy certain gear, so he would literally make our backpack frames. That gave me a love for nature and being outside. Reading *Field & Stream* made me want to be an Alaskan guide.

The Army had a program for a three-year commitment, which gave you money for college. A neighbor kid and I were gonna go in together, but he backed out at the last minute. [Laughs.] I ended up joining the Army in 1980, and they had a pinpoint location to the 2nd Rangers Battalion. I wanted to go to Alaska, but there weren't Rangers in Alaska, so the closest I got was Washington State, which was my first station.

When was your transition into Delta?

J.S.: I actually went to a briefing way back in my Ranger days, but I hadn't been in the Army long enough to be eligible. Several years later, I was stationed overseas. They were sending a lot of Rangers to the LRRP (long-range reconnaissance patrol) companies during the Cold War, and I got transferred into the ILRRPS (International Long Range Reconnaissance

Patrol School). It was administered by 22 SAS (Britain's Special Air Service) out of concern for all NATO LRRP forces. These 22 SAS guys were like, "Why aren't you in Delta, Jim? You do everything we do."

They were into athletic sports, and they felt that if you had a junior leader climbing a mountain, those junior leaders had essentially the same skills utilized on a mission — but American forces thought it was more like f*cking around. I climbed Mont Blanc, which

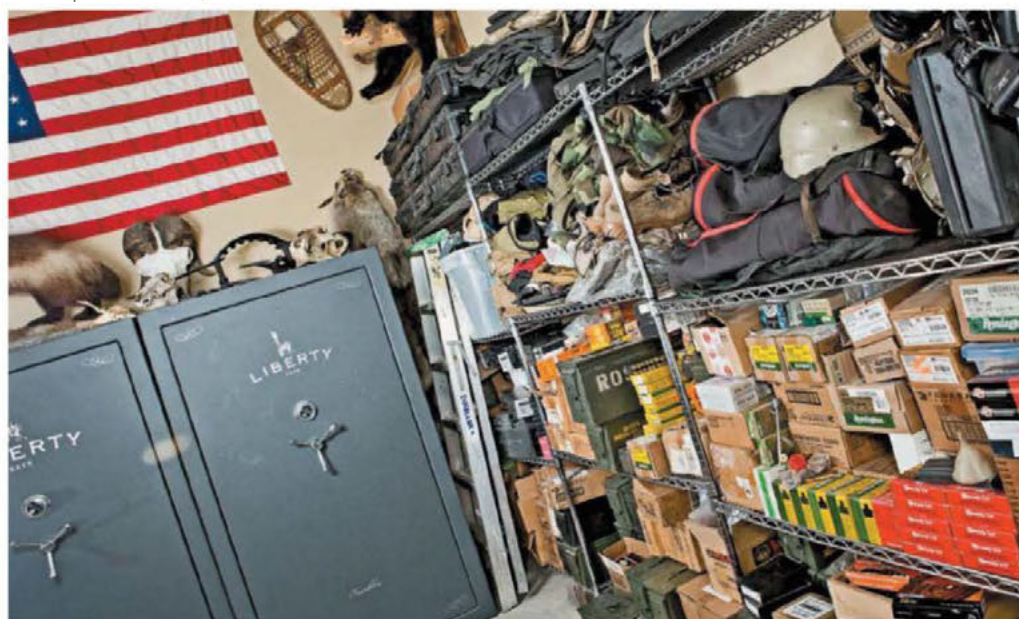
is the highest peak in the Alps. I also climbed the Matterhorn, the Eiger, and I even did the Haute Route. I did a 300-kilometer ski tour, and I was the only American doing any of this with these guys. They really loved me, and actually called back to Hereford on my behalf. There was an American there on an exchange program, and he got the number of the Delta recruiter and they called him, unbeknownst to me. He came down, called me, and invited me to go through the process.

What was the biggest thing you took away from your experience in Delta? How did it shape you?

J.S.: I just loved the professionalism of it. In my whole military career and in life, I hate to waste time. When I got to Delta, it was so efficient. I mean, the whole system was so efficient. Even the team room layout, the paths to equipment; there's no wasted effort and time in Delta. I loved that.

Obviously, you've been through a lot in your military service. Do you share that with your family and children? Are they aware of the tough situations you've endured?

J.S.: I haven't shared a lot with them,



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so they're always pretty surprised if they hear about or see something I've done. For me, I definitely stand behind the Delta mantra of being the "quiet professional." That was hammered into us in Delta for years, and I think that's another reason why we aren't quite so vocal about our service.

The other side of it is just the fact that war is horrific. You're trying to destroy people. Your mates are getting destroyed, blown up. I think Hollywood overdramatizes it and makes it sound so exciting. There's adrenaline, of course, but I want my children to know that it is truly horrific. They have seen things regarding the Black Hawk Down incident in which we were shot down over Mogadishu. That was a trying day for our whole team, and obviously it has gotten a lot of publicity since then.

Do you still keep in touch with your former Black Hawk team?

J.S.: We're still close, but I was the only guy not to make it to our 20-year anniversary of Black Hawk Down because

Jim gave us a few pointers for shooting prone on one of the numerous long-distance targets found on his sprawling Spartan Tactical training range.

I have a huge match I run every year on October 3rd to the 5th. There were 600 people on my range — I just couldn't leave, as I'm in charge of everything for the match. There's obviously a lot of history with those guys, and I wish I could've been there.

Had you read the *Black Hawk Down* book prior to seeing the film? Did you know that any of it was in the works?

J.S.: I had read the book before I saw the movie. I was in Artesia, New Mexico, when I saw the movie. I was training the Air Marshals right after 9/11.

What was it like for you to read the book and to see the movie?

J.S.: The book was written by Mark Bowden and was based on interviews conducted with the Army Rangers, but they were external security at the time. They had only a single interview from one of the Delta guys. Because of that, a lot of the stuff in the book wasn't correct.

What parts do you feel were misrepresented?

J.S.: There were a few errors, some more egregious than others. A good example involves my rescue of our sniper, Dan Busch, which is why I was awarded the Silver Star. I told his family I did everything I could for Dan. He was in danger. I killed the insurgents who were trying to hurt him. And as soon as the bird landed, I ran out into harm's way after being shot, dragged him to safety, attempted to load him on the bird, dropped him, and made the right seat co-pilot get out and help me load him. But I did everything I could, and we got him to the operating room within 15 minutes.

When the book came out, it said that I propped him up against a wall, gave him a pistol, and he got shot a second time. It was horribly false! In my opinion, Mark Bowden was never a friend of the Unit. After that book came out, somebody said to him, "Hey, you're making all this money off of our dead and wounded. Why don't you donate

JAMES
CASANOVA



JESSE
TISCHAUSER

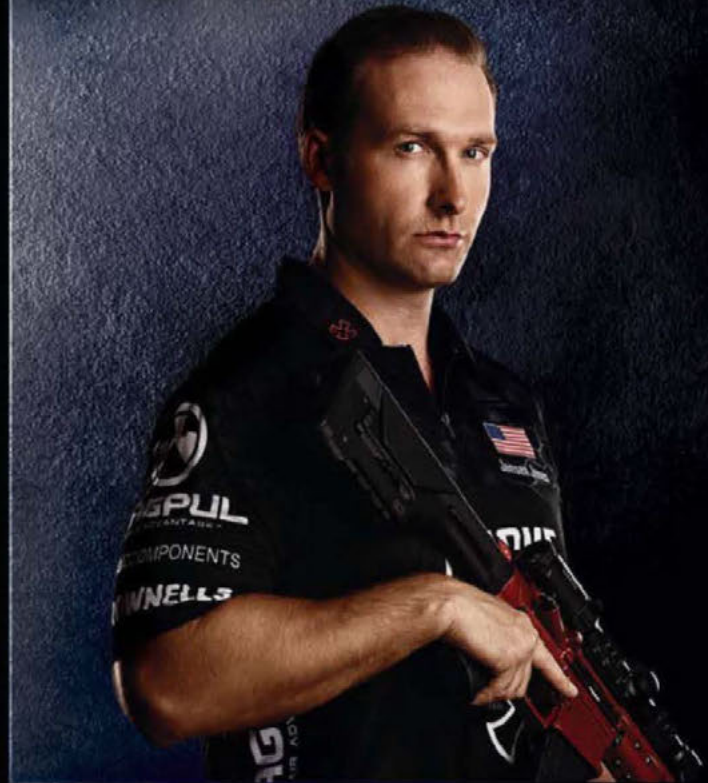


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to the Unit scholarship fund and give something back?" He said he did, but as far as I know he never did.

What about seeing the movie? Was it tough to be transported back to that moment, even if it was a Hollywood movie?

J.S.: Yeah, it was tough the first time. I talk to veterans, and I bring this up. I think men tend to mentally "lock shit in a room" and you don't go there. So, it's tough when something makes you have to go there — especially something so visual. Beyond the traumatic situations, there's also the loss you feel when your mates don't make it back. Randy Shughart and Gary Gordon, the two snipers we lost, plus my other squadron mates. I mean, I was closer to those guys than some of my own family! Another guy and I almost died in Desert Storm when we had a truck shot out from under us. You have so many experiences, and it forms a bond that lasts forever.

When you started Spartan Tactical, what were your overall goals and what were you looking to achieve?

J.S.: I spent 20 years in the military,

“BLACK HAWK DOWN WAS A MOMENT IN MY LIFE. IT HELPED MAKE ME WHO I AM, BUT THAT’S NOT WHO I AM. I’VE GONE BEYOND THAT. THAT’S HOW I FEEL, AND I WOULD NEVER COMMERCIALIZE WHAT MY MATES WENT THROUGH.”

and that shapes a man and defines him. During my military career, I was fortunate to have had very good leadership. In Delta, we'd bring in the best trainers in the world, and we would learn everything from them in terms of both their mental abilities and firearms proficiencies. When I started training others, I realized I was good at it. It's easy for me to look at people or students and know how to help them accelerate their own learning curve and abilities.

What made you choose the name "Spartan Tactical?"

J.S.: I named my company Spartan Tactical because, at one point in time, the Army was considering having a Spartan tab for guys who had a Rangers Tab, a Special Forces tab, and were a Delta operator. If you think about it, there are only about 300 dudes who have been in Special Forces, Rangers, and Delta. There are not that many Delta operators — it's a pretty selective group. [RECOIL contributor and former Delta member] Pat McNamara actually drew the Spartan logo for me; he is so talented.

Your instructional range is quite impressive. How did it come together?

J.S.: I built it exactly as I wanted it, from the ground up. It's all cash out of pocket. I'm partnered with the ranch owners, so I don't own the property, otherwise it would be like \$7 million. [Laughs.] It's been in their family for like four or five generations deep, to the point there is a hand-gathered stone fence well over 100 years old spanning parts of the property. The toughest thing for me about moving to Texas was finding out that 97 percent of the land is privately owned, so it was hard to get a range set up. The family is real supportive, and I've invested a lot of my money into making sure that we've got everything we need.

We utilize roughly 3,500 acres

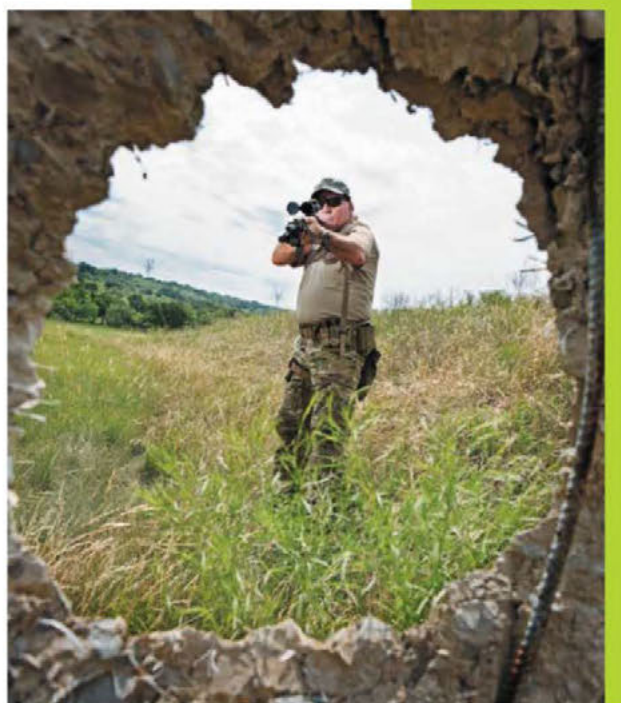
on a 17-square-mile property, with three 50x50 pistol bays, a breacher bay, an admin building, a 300-meter carbine range, a couple other 200-meter ranges, a 1,000-meter range, a 600-meter mover range, a 400-meter mover range, several remote ranges, 20 steel targets off a cliff, and a precision angle fire course with 43 steel targets from 200 to 1,800 meters located within a 12-mile loop. All told, there's probably \$90,000 worth of targets and steel. And we have natural terrain, as opposed to say a flattened area of dirt in a box. The environment really adds to our three-gun matches, which are in the "Big Five" nationally, as well as to our precision rifle match that we will hold next year in May to early June.

Now that you have made the transition to being an instructor, what's the one thing that you did as a student that you think helped you the most while qualifying for Delta service?

J.S.: I'm a big advocate of taking notes. When I went to the Q Course, I was No. 1 out of everybody for the six-month course. I was big on 3x5 cards and memorization, as there are so many tests. I was the only guy ever to get a maximum 100-percent score on the calculation and placement of demolitions because I did every problem three times, and they didn't allow you to use calculators back then. Now, with technology and the new culture that comes with it, I think you're seeing the consequences in sniper training where guys aren't writing stuff down, and they're not memorizing data.

How do you adapt to this culture as a teacher to help your students avoid the pitfalls of becoming complacent or less diligent?

J.S.: I'm a fan of the reasoning behind a successful exercise. At my Spartan classes, we're big on knowing "the why," not just "this is the way we did



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it, or this is how we were taught." We teach principles, and we highlight techniques. We're willing to show students why things should be done a certain way. We'll take them out and show them the flaws in a certain technique, and why there is something more effective. Some instructors only know drills, but I don't think that simply running drills is as encompassing as it is to truly dissect technique and principles, on top of the drills and field exercises. I want to prepare my students in the best way possible for situations they may face out in the field. I've had a lot of emails from people I've trained who said that what I taught them really aided them in life-and-death situations. It's touching to hear and also great to have that kind of feedback as an instructor because it helps build and maintain effective curriculum.

Do any particular emails stand out?

J.S.: Yes, one that sticks out was a personal security detail course I ran for guys going to Afghanistan. The guy wrote something like, "In the year rotation, we did 370 movements, and we were mortared, we were bombed, we were hit with IEDs, and we had complex ambushes. But we never lost

The respect is more than mutual between Jim and those with whom he has served and trained.

anyone, and we attribute that to the training you gave us." That meant a lot to me because I have been out in those situations myself during my service. I also had some great experiences training the Texas National Guard. Texas has a phenomenal National Guard, and the guys were forward-thinking enough to bring in good trainers. Our biggest course had 420 soldiers enrolled, and I got so many emails from those guys.

What is your favorite thing to see as an instructor?

J.S.: I would say it's probably seeing the growth in confidence that the students have. I've got these guys and gals for a few days, and watching them transform in that short amount of time is so great. They come in and they're kind of soft, and by the end they're screaming and pumped up.

You're pushing them to get that confidence.

J.S.: Yeah, I mean, they'd never had training as intense as what we gave them. We frame it, use a building-block approach, and when you put it all together, you see someone become twice as good as they were before.

What is the typical breakdown of your class enrollment?

J.S.: I prefer a low student-to-teacher ratio. Usually, military classes will have myself and four or six other instructors with 40 students, and we will break them down in squads of 10. LEO classes are usually less than 20 shooters with four instructors. For civilians, the ratio goes up slightly. If we're doing dynamic stuff, it can be as low as two-to-one or one-to-one depending on the drill. In 2005 to 2007, I did a lot more civilian courses, but by the end of '07, we focused more and more on military training, given the events that occurred around that time.

Tell us about all of the different military branches or law enforcement agencies for which you have built training programs.

J.S.: I was going overseas right after 9/11, and a buddy of mine called me regarding the creation of an Air Marshal program. I teamed up with about seven other guys and wrote one, which transformed a group of about 33 Air Marshals into a group of 4,000 very focused and well-trained Air Marshals who achieved one of the best federal

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law enforcement standards for marksmanship. I've also done programs for the U.S. Army Special Forces, the U.S. Army 75th Rangers (as well as other units of the U.S. Army), U.S. Air Force Special Operations, MARSOC and other units of the U.S. Marine Corps, and federal, state, and local law enforcement agencies, as well as some overseas work.

Do you prefer training more experienced shooters or more entry-level shooters?

J.S.: We don't normally do basic level classes. Our courses pretty much start at intermediate levels. As an instructor, you should be able to do more with a guy with less experience; with the more experienced students, you've got to sharpen what they have. You need to take those students into more advanced training and test their grasp of fundamentals within different contexts and scenarios. You want those fundamentals at almost an intrinsic level so that the students can focus on problem solving, because it takes that synthesis for success.

We're also going after the higher end training market, as well. I've been in negotiations with a few companies to set it up where a guy can come, we'll provide the rifle, optic, the ammo. They can shoot with the best stuff, and if they want to purchase it when they are done with the course, they can. We also generally prefer three-day classes for LEO and civilian, too, as we feel our students can get a better result, even though a lot of trainers prefer to offer a two-day class for the sheer economics of a weekend class.

How did your relationship with Leupold and Stevens come about, and what do you do for the company?

J.S.: I consult for Leupold and Stevens, and I've got ownership on all of their military scopes for about the past

JIM SMITH

AGE:
Like a Fine Wine

FAMILY:
Wife and four kids (ages 29, 15, 12, and 9)

SELECT PERSONAL FIREARMS:

► **Bolt-Action Rifles:** Remington MSR with interchangeable barrels for 7.62mm, .300 Win Mag, or .338 Lapua with a Leupold Mark 8 3.5-25x56mm scope (one of two to currently own one); Sako 75 Guide Gun responsible for many trophies; Remington XM2010 Enhanced Sniper Rifle M24 700 Action in .300 Win Mag; RACS chassis with Leupold Mark 4 ER/T 6.5-20x50mm scope; Currently building a 6.5 Creedmoor and others.

► **Semi-Auto Rifles:** Knight's Armament, LMT .308, JP Rifles, among others.

► **Pistols:** Sphinx 9mm full-size, subcompact, and a compact; Kimber U.S. Marine Corps .45 ACP 1911; Rock River Arms Ranger 1 custom .45; among others.

AWARDS:
Silver Star, Legion of Merit, Purple Heart, and The National Defense Industrial Association Hathcock Lifetime Achievement Award for significant contributions in the operational employment and tactics of small-arms weapons systems.

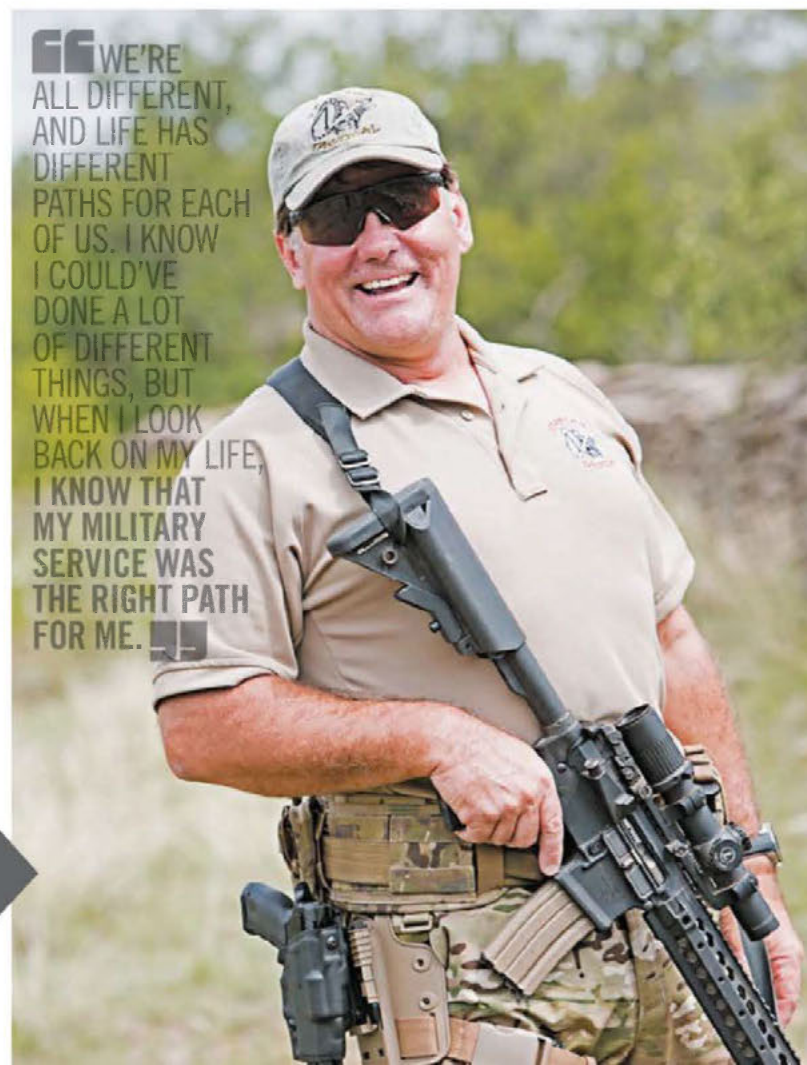
five years. There are small elements of design and ideas I've given the engineers. Initially, it started as training. They brought me out to Raton, New Mexico, to do a course for them, and that turned into an invite to the factory to train their engineers. It got to the point where we began discussing designs. If a new scope was being built, we would talk about necessary features, and I became a consultant to the company in both design and function, since I brought an area of experience to them that they didn't have. It's been a great relationship, and we've produced some very positive results with the products.

What do you think about the way that the firearms industries and firearms instruction industries have grown?

J.S.: I look back on those early Rangers days, and it's like we were living in the Stone Age. The technology has

really grown for the better. Being in the industry and working as a match director, I get to talk to these companies like Barnes Precision Machine, JP Industries, LMT, Knights, and various other companies. They're making good shit! All these guys are. Years ago, you'd have never heard of smaller companies like that. Vertx is another great company to work with; their products are phenomenal.

The down side to the rapid industry growth is really more on the instructional side. Unfortunately, there are a lot of charlatans out there; guys who haven't done anything, but they act like they did in order to entice admissions. That does a disservice not only to your students, if you're advertising your training as an experience-based instruction, it's also a slap in the face to the legitimate instructors out there who have lived through those actual experiences. ■

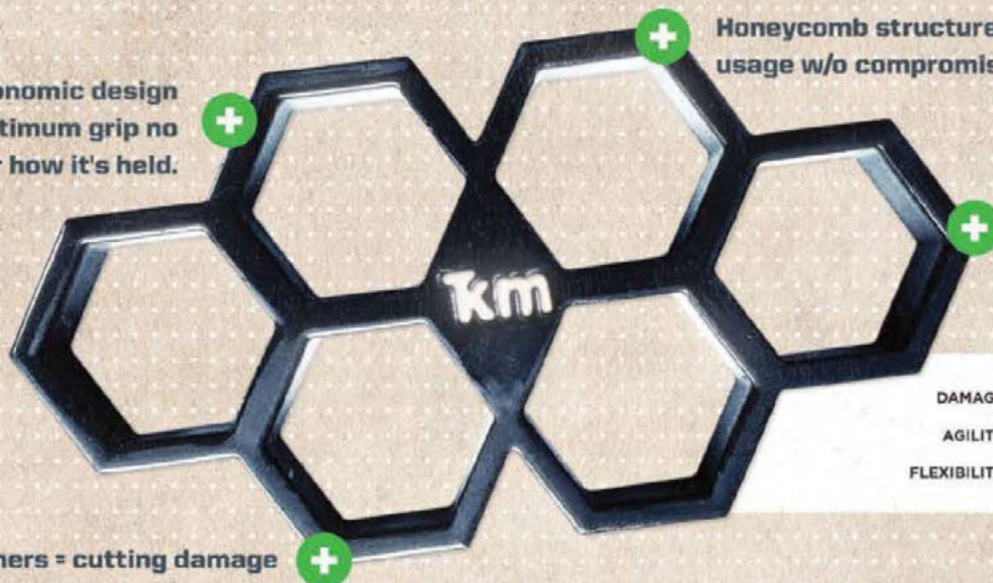




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Not wearing safety gear to the range is like forgoing protection during a one night stand: the consequences are life changing and possibly permanent. The

saddest part is that, with some common sense, they're 100-percent preventable.

No self-respecting shooter in his or her right mind would hit the range without the appropriate kit, eye protection, and ear protection. Having delved into eyewear in RECOIL Issue 8, we're going to focus here on the latter piece of safety equipment.

Hearing protection will do just that:

protect your hearing. And hearing is essential to awareness, but it's something we take for granted, says Grant Reynolds, a tactical firearms instructor with Solutions Group International. "There are things the eyes won't pick up due to light restrictions, distance, and defilade. The ears work all the time, 24 hours a day," says Reynolds, a former Marine Corps sniper. "As you get older, you start to lose certain frequencies that your ears can hear. That's just the natural order of things. However, spend the day on a range

with a .50-cal or even a SAW while not using hearing pro, and you can speed up that natural order real quick."

Fortunately, the technology that goes into making "ear pro" is quite effective these days. There is now everything from Bluetooth-compatible earmuffs to \$1,000 custom hearing aids. However, we recognize that not everyone was born with a silver spoon in their mouths, so we're zeroing in on models that are available for \$100 or less. Read on to find out what's the best option for your ears and your wallet.

THE FIFTH SENSE

Hearing loss can happen in several ways, but for the purposes of this story we'll focus on the kind that occurs when sound energy damages one or more of the ear's three main structures: outer ear, middle ear, and inner ear. The outer section consists of an earlobe and auditory canal, which funnel sound waves in. The middle ear contains the eardrum and three tiny bones, which convert the sound waves into mechanical vibrations that are then transmitted to the inner ear. There, a snail-like organ called the cochlea turns the vibrations into nerve impulses that go to the brain. Also, the inner ear helps with maintaining our equilibrium, so hearing damage can also result in disorientation and trouble keeping balance.

Harmful sound waves generally come in two forms: constant sound over time and a single impulse noise. An example of the former could come from working around industrial equipment that isn't thunderous but continuous. The latter can come from

a single exposure to, say, a firecracker going off too close to you.

In the firearms world, hearing conservation didn't enter the collective consciousness until the mid-20th century. After World War II, many soldiers returned home with varying degrees of hearing loss. But many weren't diagnosed because hearing damage is often painless and not uniform; not everyone will be injured in the same way by the same noise exposure. There are many factors involved — the caliber of the round, the distance from the gunfire, the frequency between shots, the type of environment, just to name a few. And then there's the machismo. Doug Moses, the marketing manager for 3M's Peltor line of hearing protection, says that many old-school shooters had a bit too much testosterone and not enough knowledge: "It used to be a matter of manly pride not to wear ear protection. But once they learn how preventable hearing loss is and how long the damage lasts, they soon change their mind." The macho culture

Pick the right hearing protection for the job. During tactical classes, communication is vital. Here, during a high-risk dignitary protection class hosted by SureFire, the author uses electronic earmuffs for protection, but can still hear instructor Fil Cazz call out which targets to shoot. Photo by Q Concepts

has given way to common sense in the past decade or two.

"When I was training and during Marine Expeditionary Unit buildups, I would always use ear pro," says Reynolds, the former sniper. "While in theatre, I didn't always have that luxury. Having said that, nobody ever gave me a hard time if I was using ear pro. It was a personal decision."

The science of audiology is still growing. While there are decades of research on occupational hazards (constant noise), there's far less on impulse sounds, says Dr. Theresa Y. Schulz, a hearing conservation manager with Honeywell Safety Products (which manufactures the Howard Leight line of hearing protection). "Because you don't know all those variables, the smartest thing is to be as protected as you can be for every shot," she says. "Can one exposure without ear protection cause hearing loss? Probably not. But if you're a susceptible person and in a reverberating environment like an indoor range, the risk keeps going up and up."



OBTAINING ATTENUATION

Quality ear pro can limit these risks by attenuating (or reducing) the amount of decibels entering your auditory system. What are decibels? They're the unit used to measure a sound's intensity levels. For example, an average conversation is about 60 to 65 decibels. Noises above 85 decibels (such as a power lawnmower) are considered harmful, while 140-plus decibels (think jet engines) are considered dangerous. So, where do gunshots fit on the scale?

While firing a .22 LR cartridge might clock in at 130 decibels, a 9mm or .357 round can register at 160 decibels, Schulz says. The blast of a 12-gauge shotgun can be as loud as 170. Hearing protection can attenuate these levels by at least 20 decibels, with the most protective models climbing into the mid-30 range.

Ear pro has come a long way in the past half century. Though primitive forms of hearing protection have existed since the 1800s, it wasn't until almost a decade after the U.S. Air Force was established in 1947 that systematic hearing-conservation efforts started in earnest, due in part to the introduction of the jet engine. In 1962, Ray and Cecilia Benner invented moldable silicon earplugs, marketing primarily to swimmers because of the material's waterproof attribute and less so for its noise-reducing capabilities.

Nowadays, quality models made by reputable companies will attenuate noise levels and help preserve your hearing. So, with all things being equal, selecting the right ear pro can be tough at first. "If there's an underlying theme for the entire topic of ear protection," says Moses at Peltor, "it's the theme of personal preference."

To help you decide, we've briefly delineated the most common types of affordable ear pro used by shooters here.

FOAM EARPLUGS

Ross Gardner patented the foam earplugs in 1972, and they haven't changed much since then. "Foamies" can often be seen in RECOIL's action photos, as they're our editor-in-chief's favored ear pro — Iain's old-school like that.



This type of hearing protection is quite popular for several reasons:

» **Price:** They're cheap. If you're a savvy online shopper, you can score a bulk pack of quality earplugs for about 20 cents a pair.

» **Size:** Each one is about the size of a .45-caliber round, so you can store tons of them in your range bag.

» **Weight:** Being made of foam, they weigh next to nothing.

» **Comfort:** They're quite malleable, so they can generally conform to most ear canals.

» **Low Maintenance:** Plugs don't require any prep, maintenance, or batteries.

» **Strong Attenuation:** This low-tech design still provides some of the best attenuation on the market. When properly inserted, they usually have a noise reduction rating (NRR) of anywhere between 25 to 35 decibels. For example, the Howard Leight samples we reviewed have a NRR of 33 decibels.



However, on the flip side, there are some drawbacks to consider:

» **Limited Use:** They're disposable. Foam just doesn't last as long as other materials.

» **Size:** Yes, this factor is both a plus and a minus. They're small...sometimes too small. Without a carrying case, these earplugs are not ideal for disorganized users. Who hasn't been at the range for a full day of shooting only to drop one of these, never to be seen again? Bring extras just in case.

» **User Error:** If you've never worn foamies before and haven't been shown how to properly insert them, it's easy to not seat them correctly in the ear canal, leaving just enough gap for a loud surprise when you press the trigger.

» **Passivity:** Earplugs provide passive hearing protection — once they're inserted, they block out sounds indiscriminately, including those of your firearms instructor, fellow shooters, or range safety officer. Similar problems arise if you're wearing them on a hunting trip.

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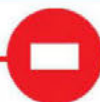
PASSIVE EARPLUGS

An in-the-ear hearing protection upgrade is the reusable earplug. Made of synthetic rubber or similar materials, this type of ear pro usually features pre-molded flanges that act as soft seal rings around a stiffer center core that helps with insertion and removal.



They, too, offer numerous benefits:

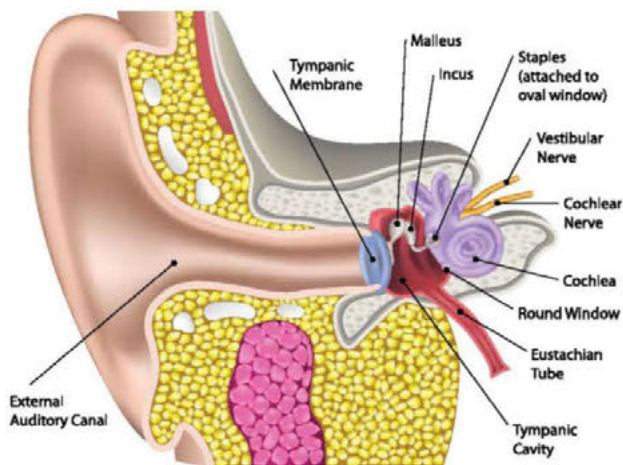
- » **Price:** Most decent pairs are available for a few bucks.
- » **Size:** They use up little space on your body or while in storage.
- » **Weight:** Not as light as foam, but still feather-like.
- » **Corded:** Some models feature a plastic or nylon cord that connects the earplugs and lets them hang around your neck when it's "all clear." This is quite convenient when you need your hands free, have problems remembering where you put your foamies, or need to transition quickly between shooting and communicating.
- » **Low Maintenance:** No batteries required. And most models can be cleaned with just water. If you have an abnormal amount of ear gunk (never heard of a Q-Tip?), you can always add a bit of soap, too.
- » **Good Attenuation:** Though not all are as effective as their foam forerunners, flanged earplugs provide solid attenuation performance. Most provide a NRR in the mid-20-decibel range. The Howard Leight AirSoft we reviewed has a NRR of 27 decibels.



Shooters who like this type of ear pro might overlook their potential shortcomings, but they're still worth noting:

- » **Sizing:** These come pre-molded in set sizes, usually small, medium, or large. But what if you have tiny or humongous ear canals? If the plugs are too small, you won't achieve that acoustic seal. If they're too big, it might block out sounds, but also cause discomfort.
- » **User Error:** Failing to insert these correctly can leave room for hearing damage.
- » **Passivity:** Passive flanged earplugs block all types of sound waves, creating similar problems as the foam earplugs.

THE AUDITORY SYSTEM



MYTH? BUSTED!

You've probably heard someone say this and thought it was plausible, "Harmful sound waves from a gun blast can hit the bone behind your ear, vibrate inside your head, and cause hearing damage. So, you should wear earmuff-style hearing protection rather than earplugs." Sorry, pseudoscientist, but you're wrong.

"That is an urban myth," says Dr. Theresa Y. Schulz, a hearing conservation manager with Honeywell Safety Products. "If you need a lot of hearing protection, your best solution is a deeply, well-fit foam earplug. However, a lot of them don't always fit some people that well, so then maybe an earmuff is a better option."

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ACTIVE EARPLUGS

Active earplugs are the next stage in the evolution of affordable earplugs. Some models might feature multiple flanges or memory foam tips for comfort. They look similar to their passive brothers, but have one added feature: a filter that allows low-level sounds (like conversations) to pass through, but restricts high-level impulses (such as gunshots).



Here are the benefits:

- » **Price:** Even the most sophisticated models run no more than \$20.
- » **Size:** They're compact and low profile.
- » **Weight:** You won't even notice them in your ears or in your range bag.
- » **Corded:** With the exception of some double-ended models, active earplugs come with a convenient cord to keep them at the ready and from misplacing them.
- » **Low Maintenance:** Like a sexy but self-confident girlfriend, active earplugs are low maintenance. No batteries needed, and they're easy to clean.
- » **Attenuation Adjustment:** You can actually switch the attenuation levels, from closed (passive protection against constant sounds) to open (active protection against impulse noises). For example, the Combat Arms Single-Ended Earplugs by 3M offers an NRR of only 7 decibels in open mode, but 23 decibels in the closed mode. The EP7 Sonic Defenders Ultra from SureFire provides a 14-decibel NRR with the filter caps out and a 28-decibel NRR with the filter caps in.



Again, there are some minor concerns that should be raised:

- » **Sizing:** If you're one in the minority whose ears don't fit the common small, medium, or large sizes, you'll either experience discomfort wearing these or an earsplitting shock upon the first round fired.
- » **User Error:** These aren't fool-proof. Incorrect usage can leave you vulnerable to hearing damage.
- » **Switch Manipulation:** Some models are designed better than others when it comes to switching between active and passive modes. The Combat Arms Earplugs features an easy-to-use rocker, similar to modern light switches, which you simply press down or up. But the EP7 can only be closed by inserting the filter cap into a tiny hole on the earplug's stem, which can be difficult if you're already wearing them and either lack the dexterity or have sausage links for fingers.



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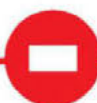
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Consider these acoustic earmuffs if the following advantages sound good to you:

- » **Price:** They range from about \$20 to \$35.
- » **Size:** Models are generally one-size-fits-most.
- » **Fit:** Unlike in-the-ear protection, earmuffs are easy and quick to put on: place the cups over your entire outer ear and you're good to go.
- » **Good Attenuation:** Most offer moderate to good attenuation, generally in the low to mid 20-decibel range. The Peltor X4A from 3M we reviewed provides a NRR of 27 decibels, roughly 3 to 6 decibels higher than other low-profile earmuffs in its class.
- » **Easy to Handle:** Because the wire headband provides comfortable inward pressure, you can clamp the cups on your temples or your cheeks and the headband ensures they won't go anywhere. Or you can wrap the headband around your neck.



However, earmuff-style hearing protection presents a whole other set of challenges:

- » **Kit Clutter:** If you're wearing a cap and sunglasses, the earmuffs could affect how your other gear sits. Look for models that have a low-profile design.
- » **Cheek-Weld Wander:** Some models have such bulbous ear-cups that they interfere with obtaining a proper cheek-weld, as the ear-cup can stop you from getting close enough to the buttstock of your long-gun. Consider models that have slim ear-cups.
- » **Passivity:** Passive earmuffs filter all sounds indiscriminately.

PASSIVE EARMUFFS

Non-electronic earmuffs are modern descendants of Chester Greenwood's 1873 winter invention, but the models in our story protect our ears not only from frostbite, but also sound waves.



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ELECTRONIC EARMUFFS

What do you get when earmuff-style protection has a threesome with a microphone and headphones? They make this baby. Electronic earmuffs amplify low-level sounds so you can hear ambient noises and people talking, but attenuate high-level impulses so you're not damaged by gunfire, explosions, or the like.



Electronic earmuffs happen to be this editor's favorite kind of ear pro for the following reasons:

- » **Size:** They fit most people's heads, so there's little adjusting and sharing is easy.
- » **Fit:** They take a few seconds to obtain a good fit.
- » **Easy to Handle:** See above.
- » **Automatic Attenuation Adjustments:** From enhancing conversations to dampening gunshot sounds, this ear pro does all the work once you turn it on. They also come with volume dials, too, so you can adjust how loud you want the incoming sounds to be. Our sample pair of Howard Leight Impact Sports has an NRR of 22 decibels while amplifying ambient sounds to a comfortable 82 decibels.
- » **Price:** Sure, some brands, like MSA Sordins, can skyrocket up to \$300, but there are good sales online. During a recent quick Internet search, we found both the Peltor Tactical 6S and the Howard Leight Impact Sports for \$50 when their MSRPs are about \$100 and \$75, respectively.



However, electronic earmuffs aren't perfect. There are some marginal hindrances:

- » **Kit Clutter:** Yep, electronic versions can also mess with other head gear.
- » **Speaker Static:** Because there are little speakers inside the ear-cups amplifying or filtering the noises around you, the quality of sound you hear is dependent on the quality of electronics in your headset. Some models we've used in the past produce a sound that's low fidelity at best. Like with all electronic devices, you get what you pay for.
- » **Cheek-Weld Wander:** Some models that can interfere with your ability to get a solid cheek-weld. Word of advice: shop around until you find a pair that fits your specific setup. Note that lower-profile ear cups may also result in lower NRR ratings, so be sure to check the specs to ensure they fit your needs.
- » **Batteries Not Included:** You'll need batteries to power these bad boys, and that can cause problems. If they run out of juice or you forget them completely, you're now wearing the most expensive passive ear pro on the range. If you accidentally store the earmuffs with the batteries still inside, battery acid might leak out and damage the unit. As they say, the more moving parts, the more chances for failure.

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PICKING YOUR PRO

So, with all these choices on the market, which type of affordable ear pro is the best one? It's the one people wear, Schulz says, not trying to be glib. "The important thing is getting a good feel with your hearing protection," says Schulz, who was an audiologist with the U.S. Air Force before retiring as a lieutenant colonel. "You don't need the highest-rated hearing protection. You just need one that will fit like a plug. It's getting that acoustic seal that's most important." As a shooting enthusiast herself, Schulz wears foam earplugs underneath electronic earmuffs with the volume turned all the way up. "I can hear my husband talking and the birds chirping," she says. "But when I fire, I'm more accurate because I have a lot of hearing protection on."

Reynolds, the former Marine, says he uses Peltor electronic earmuffs

when he teaches because they're quick to put on and take off in between drills. Whenever he's doing personal training or shooting for extended periods of time, he wears a pair of SureFire Sonic Defenders Ultra earplugs. "Both of these work well for me when I need them," Reynolds says, "and they don't break the bank."

Buying ear pro doesn't have to be an expensive process. There are many affordable options out there. But whatever your preference, you must use it (or perhaps better yet, like Dr. Schulz, double up on your ear pro). Even the most low-tech and inexpensive kind, the foam earplug, is a pretty powerful insurance policy against hearing loss. And like herpes, it never goes away. You're stuck with it for life. So please always remember to wear protection — for your ears, your eyes, and your naughty bits. ■

» SOURCES

Doug Moses, 3M Personal Safety | www.shop3m.com
 Grant Reynolds | www.solutionsgroupinternational.com
 Dr. Theresa Y. Schulz, Howard Leight | www.howardleight.com
 SureFire | www.surefire.com

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REDUX

Way back in Issue 7, we took a prototype piston upper for the AR-15 out for a spin. While we noted a few areas that could be improved, we reckoned it showed enough promise to pronounce it a winner.

Never ones to pass up a test piece, we decided to hold onto the sample and beat the snot out of it, using it for optics and ammo evaluations, shooting from helicopters, and abusing it as a truck gun, where it was usually encrusted with a ¼ inch of fine Arizona desert dust. After dropping in the .300 BLK barrel, the upper enjoyed a couple of hog hunting trips wearing all manner of IR kit — and apart from a couple of chewed-up Picatinny rails, it's shrugged off all the abuse we could heap on it.

In the intervening months, the Faxon team has addressed the initial problems we found with their baby and are now offering it as a complete firearm. We decided to examine the

improvements and see how the finished product stacks up.

PROTOTYPE TO PRODUCTION

Firearms are a pretty small part of the Faxon Engineering empire. Based out of Cincinnati, Ohio, the company caters mainly to the aerospace industry, and one of its specialties is making things that produce very, very big booms for three-letter government agencies. This is not a mom-and-pop business bolting together ARs in their garage. It's not a faceless multinational defense contractor either, as Bob Faxon has a reputation for replying to customers' emails and calls personally, especially if there's a question about his gun that the customer service team can't answer.

In case you missed the original review, the upper is based on a long-stroke piston system, mated to a multi-lug rotating bolt. As such, it offers the

best of both the AK and AR platforms, with a smattering of improvements over both. Hogged out of a monolithic block of aluminum, it gives a massively strong (if heavy) continuous top rail for optics. A four-position, adjustable gas block ties into the front of the rail system, and one of our earlier concerns was that this area became pretty hot after extended periods of firing. In order to mitigate heat transfer, phenolic spacers have been added under the lower and side rails on production models.

On the 5.56mm barrel, the prototype's A2 birdcage flash hider has been replaced with a device that looks very similar, but which offers more recoil mitigation and the benefits of the "Muzzlok" feature, enabling installation without the use of a crush washer. The .300 BLK barrel currently lacks this improvement, which is a pity as it allows the removal of the device in the field, should you wish to install a can.

Instead, the .300 BLK ships with a proprietary Loudmouth single-chamber brake. The good news is that the brake is effective, despite its abbreviated dimensions, and when shooting supersonic 110-grain ammo, it cuts felt recoil to about that of a 5.56mm. Muzzle flash, though, was pretty spectacular in low light. The .300 BLK barrel ships with



a couple of thick, red rubber bands emblazoned with the caliber, which slip over the magazine body. We asked Bob why he decided to include them, and he replied, “Ha, easy answer. I blew one up!” The number of people who have accidentally chambered a .300 BLK round in a 5.56mm chamber continues to grow with the popularity of the round — so to reduce the chance of this happening, the Faxon’s .30-cal barrel is identified by means of three ridges at the muzzle end, in addition to the inclusion of the mag markers.

We approved of the original’s bolt design, which features wave-form lugs and eliminates the stress risers found in this area of the AR-15. The production version retains this refinement, but adds a second ejector, providing two benefits. The first is to add redundancy to the system — if one fails, the gun will still run. The second is to shift the axis of movement as the case ejects closer to the pivot formed where the ejector grabs hold of the case. This makes for a more positive and consistent ejection pattern. Empties from both calibers landed in a neat pile about 6 feet to the right and slightly behind the shooter.

At the conclusion of the first review, we were left pondering what the ARAK would look like in the role of a PDW. Due to the almost universal acceptance of the SIG SB15 brace, the number of ATF Form 1 applications to manufacture short-barreled rifles is now at an all-time low, so following the trend we asked that the factory ship us a pistol model for evaluation. To it we

added a HERA folding stock mechanism and a GuntechUSA extended buffer tube, along with SIG’s not-a-stock. The longer buffer tube plus the folder gave a length of pull the same as a fully extended AR-15 six-position stock — fine if your arms are on the simian end of the scale, but if you’re used to running a collapsible stock on anything other than its longest setting, you might want to choose either the long tube or the folder, but not both.

Faxon is now offering their creation with a 12.5-inch nitrided, 4150 barrel, the shortest that could be made to work while keeping the original length gas system. In .300 BLK, a reduced power recoil spring is supplied in order to improve reliability, as the volume of gas generated by the .30-cal round is about 25-percent less than a .223. In addition, the pressure curve is shifted closer to the breech due to the use of a faster propellant, meaning there’s not only a shorter distance between the gas port and muzzle, but the port pressure is lower also.

Usually, in order to address these twin problems in the AR world, a pistol-length gas system is employed. Faxon instead chose to open up the gas port and use a shorter recoil spring made of smaller-gauge wire. Despite this, we found that even on the highest of the gas plug settings, the gun wouldn’t run reliably with subsonic ammo unless a suppressor was installed to increase backpressure. Once a suppressor was added, the gun ran just fine. In itself this isn’t such a big deal — why run subsonic ammunition without a can, when supersonic ammo produces almost three times more energy for about the same amount of flash and bang? In an operational emergency, sure, the ability to cycle both ammo types without a suppressor might be desirable, but in reality a can would probably be installed from the get-go.





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After the original RECOIL story ran, Bob phoned to let us know that our main concern (that the user could induce a jam by pressing in the back of the recoil spring guide rod) had been fixed. The current model now uses a second, smaller takedown pin to capture the guide rod and ensure that it stays resolutely in place. So much for changes to the upper.

The lower receiver is machined in-house from 7075 bar stock and profiled to complement the Faxon upper. While a regular direct-impingement AR-15 upper will fit, the flared portion of the lower where it meets the underside of the upper receiver walls will protrude slightly. A heavily flared magwell and integral trigger guard are standard, as well as an additional fence around the mag catch. We've never actually

Oh look, a SIG brace being used as an improvised stock. Cue internet commandos in 3-2-1...

needed the latter, but it's one of those features that costs nothing in terms of functionality to have. The included trigger appeared to be a standard Mil-spec unit that had been cleaned up and Nickel Boron coated. It broke cleanly at 6 pounds with an indistinct first stage — trigger snobs will probably want to swap in an aftermarket unit, though this one performs well enough for government work.

LIGHT 'EM UP

At the range, the modifications proved effective. Using the 5.56mm barrel, we decided to first check how much the point of impact shifted as the gun heated up. After firing a pair of five-shot groups at 100 yards, we shifted to double-tapping four IPSC targets on the 25-yard line, burning

through six 30-round mags as fast as possible. Once the little gun's barrel was smoking hot, we then returned to the 100-yard target and fired a third group — although it opened up about ½ inch, it was still centered on the bull. Group sizes averaged 3 inches using Winchester "white box" ammo, which is about what we'd expect on most good semi-autos using a 1x optic.

Reliability throughout was flawless until we got to our eighth magazine, when we encountered a failure to eject while using reloads that were built to .223, rather than 5.56mm, pressures. Prior to the stoppage, we noticed that the action felt a little sluggish compared to when it was fed the good stuff; after turning the gas plug to its second setting, the gun went back to sewing machine mode. Throughout, the combination of the factory phenolic spacers and Ergo rail covers meant the fore-end never got too hot to handle, although the same couldn't be said of the bare aluminum next to them.

Often, when a gun goes from proto to full production, corners get cut for the sake of efficiency and to appease the bean counters. We're happy to report that the ARAK has suffered no such fate and continues to incorporate the best of both Cold War-era designs, but in a modern package. ■

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› Grey Ghost Gear Stealth Operator Pack
› BattleComp 1.5
› Frank Proctor Way of the Gun Sling
› Noveske NSR
› Daniel Defense 14.5

Em (right):
› Grey Ghost Gear Lightweight Assault Pack
› Arc'Teryx Alpha Jacket, Crocodile Green
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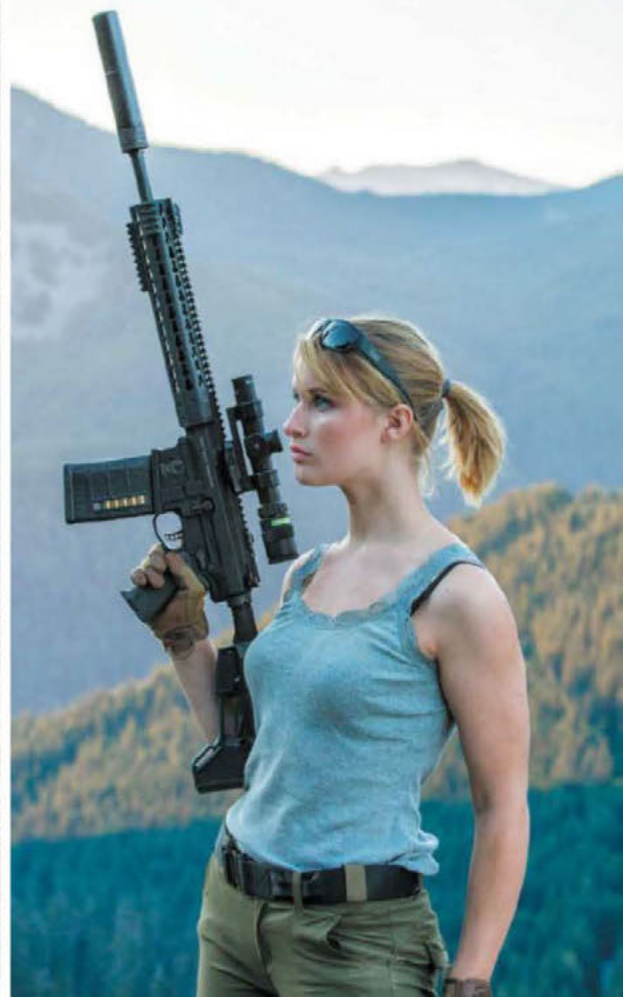


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THE MISSING LINKS

A FORMER DELTA OPERATOR URGES YOU TO KICK YOUR CLONE'S ASS

BY PAT MCNAMARA

ILLUSTRATIONS BY CHRIS BYWATER

"One should not pursue goals that are easily achieved. One must develop an instinct for what one can barely accomplish through one's greatest efforts." This Einstein quote is perfect to explain some of my drills and to help define my training methodology.

Take a moment to read that quote again. We're talking about goals that would be difficult to achieve, but are still doable. An example of this is posed in this question: If you had cloned yourself yesterday, could you kick your clone's ass tomorrow? The timeframe is relative, of course. The point: Are you making continual incremental gains to improve your mind and combat chassis? Are you truly pursuing goals that are not easily achievable?

If you've been following my articles on the Combat Strength Training (CST) program, you know that the week should be broken down into a strength day, a power day, a speed and quickness day, and a hypertrophy (muscular development) day. Workouts should be done in a circuit and should last between 25 to 30 minutes. Individual exercises should be performed in anaerobic chunks to near metabolic threshold to achieve an aerobic goal as well.

WARNING!

The techniques, exercises, and content expressed in this column are for illustrative purposes only. Consult your physician before trying any physical activity or nutritional plan.

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As you may recollect, I'm not a fan of bodybuilder-type workouts. I don't harbor disdain for bodybuilders, but I think it is a wasted investment — unless, of course, you're a competitive bodybuilder. Besides, there's no ass-kicking quality to peaks on biceps. Your clone will not be impressed.

To summarize previous articles, we need to work compound movements, in all planes of direction and within the complete muscle spectrum.

This "missing links" article focuses on just that — the final pieces of the puzzle that bring everything together. These are done in conjunction with your workout or at the end of it. They may even be incorporated in the workout. Let your imagination run wild.

MUSCULAR IMBALANCES

If you're nursing a bad knee or back or have joint pain that is unexplainable, it might not be your body breaking down, but rather an imbalance in your combat chassis. This is common with those of you pseudo-bodybuilders who work the front (the parts that are closest to the mirror) much more than the back. For example, if you do tons of bench presses or heaps of leg extensions, but don't work the opposing groups as much.

You will suffer from muscle imbalance when opposing muscles around a joint exert tension in different directions due to tightness and/or weakness. You may be overworking in one area and underworking in another. They may also occur simply because of patterns you create and constantly replicate. I developed an imbalance simply because of how I stand...or rather, stood. My normal stance was my fighting/shooting stance — shoulders semi-square, lower body slightly canted to the right. Left foot oriented forward and right foot oriented oblique to the right. This is how I stood for everything I did. Because of this habitual

behavior, I developed bursitis in my right knee to the point where the pain was incapacitating. I had to change patterns, starting with changing my stance. Changing my stance and a good stretching regime mitigate my muscular imbalances — and will give

me an edge on my clone's mobility.

I recommend finding a qualified physical therapist (PT or DPT) or certified athletic trainer (ATC) who can give you an accurate assessment of your status in terms of muscle balance, imbalance, and movement.

“YESTERDAY'S CLONE HAS AN IMBALANCE THAT CAUSES HIM EXCRUCIATING PAIN WHEN HE STEPS HARD TO THE LEFT. I WILL FORCE THIS MOVEMENT ON HIM AND FRONT KICK HIM TO THE STERNUM.”

HAND AND EYE COORDINATION

Most of us wouldn't think to work this in a gym, let alone work it at all. But it's necessary to wreck your clone in the event he has an ocular dominance.

The easiest way to work hand and eye coordination in my gym is by throwing a ball against the wall. The

drill requires that you throw it with your right hand and catch it with your left. Continue by throwing it with your left hand and catching it with your right. Initially, you'll look like a European (or a girl) throwing with your "weak" hand, but don't worry, you'll catch on fast.

Another way to work hand and eye coordination — and a safer way — is to bend at the waist, focus on a point directly on the floor, bounce a ball to that point of focus, and catch it with the other hand. Repeat in the opposite direction without losing focus on that point on the floor.

“YESTERDAY'S CLONE WAS STRONGLY RIGHT-EYE DOMINANT. I CAN FEIGN A LEFT JAB AND THROW A PUNISHING RIGHT HOOK TO THE BACK OF HIS MANDIBLE.”



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PROPRIOCEPTION

Good balance and a strong core go hand in hand. And a strong core usually means better posture, less back pain, and improved performance during exercise and athletics. Plus, the better your balance, the less likely you are to fall or injure yourself. If you haven't thought much about maintaining — or enhancing — your balance, now is as good a time as any to start. Your clone may be slacking!

The easiest way to improve balance is to stand on one leg. Most of us are better balanced on our strong side so equal attention to both sides is necessary.

“MY CLONE'S BALANCE SUCKS ON HIS LEFT SIDE. I AM HOPING TO BATTLE HIM IN A CONSTRUCTION SITE, FAR ABOVE THE GROUND, WHERE MY SUPERIOR BALANCE WILL RULE AND HE WILL FALL TO HIS DEATH.”

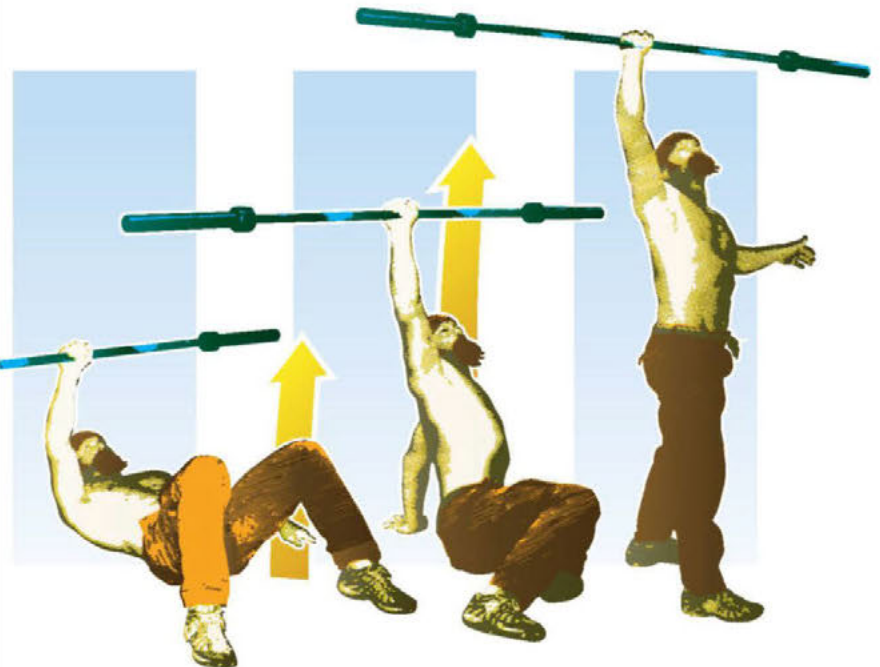


I use a kettlebell stood on its end to work balance. The kettlebell must be heavy enough so that you can't muscle it upright, only balance it. Once it's upright, stand on one foot. Slowly twist your body to face different directions, look in different directions, or close your eyes to increase the difficulty level. Your sense of vision is a big part of the balance equation. It works hand in hand with the proprioceptive systems to maintain balance and prevent falls. By staring at a single focal point (minimizing your head and eye movement), you'll balance more easily. If you shift your gaze or take vision out of the equation altogether, it's harder to balance.

I have recently increased the difficulty level of this drill by incorporating a balance beam. A simple 2x4 with a base will do the job. Upright and balance the kettlebell overhead, walk the length of the beam, change hands, and change directions.

Another age-old drill for balance, proprioception, and muscle recruitment is called the Russian or Turkish Get-Up. Designed to be performed with a kettlebell, I use a full-length barbell to increase the level of difficulty.

While lying on your back, balance the bar above you with one arm and “get up” to a full standing position. Reverse the motion by lying back down. Change hands and do it again.



FINGER STRENGTH

Hand strength is arguably the most functional type of strength out there. From shooting, climbing, or digging your claws into an adversary's eye sockets, we use our hands in day-to-day activities more than any other part of the body. The hands are also a crucial component of most upper-body exercises, so having strong hands

will help your training all around. The limiting factor to upper-body strength usually lies in our fingers' ability both to grasp and to maintain that grasp for as long as possible. Simply working grip is not enough. We must work the tips of our phalanges (love using that word) as distally as possible.

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strength. Try doing pull-ups by draping a towel over the pull-up bar and using the rolled up towel as your grip.

Another one to try is walking a sledgehammer upwards by using op-

posing finger pressure on each side of the handle. Rest your forearms on a platform. Do this at the end of your workout when you are already totally smoked.

“MY CLONE’S FINGER STRENGTH IS VERY GOOD. MINE WILL BE BETTER, AND I WILL BE BETTER EQUIPPED TO CRUSH HIS WINDPIPE.”



NECK

As mentioned in a previous article, the neck supports the command center. It needs to be worked. This is not optional, especially if you wear full kit, including a brain bucket. It is simply not acceptable to have a pencil neck on top of your combat chassis. Simple “buddy-assist” manual resistance exercises performed twice a week can determine whether you go limp or are able to stay in the fight when taking one on the chin.

Another way to develop your neck is to do a modified bridge on a bench (see RECOIL Issue 13). Take caution when doing bridges. This is your C-spine we are messing with. Adjust the amount of resistance by adjusting the distance you place your feet from the bench. Do the same thing for the back of your neck while sitting on your ass. ■

“MY CLONE’S NECK IS STRONG. HE WORKS HIS NECK REGULARLY, BUT NEGLECTS THE BACK OF HIS NECK A BIT. I WILL HAVE ROTATIONAL STRENGTH IN ALL DIRECTIONS. IF I AM ABLE TO SECURE A FIGURE-FOUR HEADLOCK, LIGHTS OUT, MUTHAF#\$KER!”



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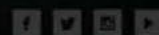
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WHEN THE GOING GETS TOUGH, CAN MODERN SUVs HACK IT?

CONVENTIONAL WISDOM SAYS THAT YOUR BUG-OUT VEHICLE NEEDS TO BE LOCKED, LIFTED, AND ROLLING ON 33s. CONVENTIONAL WISDOM IS WRONG.

BY IAIN HARRISON
PHOTOGRAPHY BY KENDA LENSEIGNE



The evolution of the sport utility vehicle (SUV) reads like the decline of the Roman Empire. Once agile, capable, and aggressive — now flaccid, pampered, and fat. Let's face it, while we'd all love a dedicated bug-out vehicle, for most of us that ain't going to happen. Life gets in the way, and compromises must be reached to accommodate the needs of significant others, offspring, and employers. So how do we get maximum utility from our daily driver? Will a competent, low-profile everyday vehicle also serve as a viable means to transport our nearest and dearest out of harm's way,

should everything go sideways? As with most of life's pressing questions, the answer is a definite, "Yes, but..."

THE SUV EVOLVES

On the way to market ascendancy during the middle part of its reign, SUV design teams bowed to the whims of their largest constituent. Sally soccer mom just loved the feeling of "security" that a high driving position and a couple of tons of Detroit iron offered, but didn't much care for the truck-like ride. Four-wheel drive sounded just peachy, but very few transfer cases were ever shifted

out of 2H. Hence the vehicle wound up schlepping a few hundred pounds of extra ballast to and from the kids' ball games. So solid axles were then ditched in favor of independent suspension, a ladder chassis swapped for unibody construction, and the whole package became softer and more car-like. After getting bored with the idiocy they'd inflicted on the basic premise of the SUV, the fickle target demographic came to hate on the former object of their desire and discovered all sorts of reasons not to like them, citing crappy fuel economy and a high center of gravity.



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After all these schizophrenic demands, can the resulting vehicle ever hope to perform in its original role off-road? We decided to find out. Any design that seeks to perform on both dirt and tarmac must, by definition, be a compromise. Some models push the needle further toward the dirt end of the spectrum, while others find their audience demands better pavement performance.

Toyota's 4Runner started out as a compact pickup with seats added to its bed and a fiberglass cap on top — about as basic and utilitarian as it gets. Now in its fifth generation, it's gained such luxuries as climate-controlled leather seats, and in so doing, gained around 400 pounds of middle-aged flab in the process. We took one in its top-of-the-line Limited spec on a multi-day off-road trip through some of the gnarliest dirt trails we could find in order to see just how a modern SUV would hold up while carrying two passengers, camping gear, a week's worth of supplies, recovery kit, and — of course — guns and ammo. Accompanying us with his expedition rig was Clark White (see RECOIL Issue 15), who fully expected to make extensive use of his high-lift jack, winch, and tow straps.

INTO THE WILD

After topping off fuel tanks, our little convoy rolled off the blacktop and onto the dirt. Temperatures nudged triple digits, while dust filled the air and volcanic rock was ground to powder by the 4Runner's street-oriented rubber, which despite lacking an aggressive tread pattern, never once left us clawing for purchase. While we'd have preferred some beefier meats, Toyota's A-TRAC

electronic traction control package did an admirable job of metering torque to all four corners, whether the surface was loose, steep, wet, or dry. It achieves this by using the vehicle's ABS system to apply braking pressure to any wheel it senses is slipping — thus preventing the open differentials from sending more power in that direction and spinning up while the remaining wheels just sit there.

Compared to Clark's spartan FJ60, the smaller vehicle's creature comforts were an unabashed luxury — while a Bach sonata wafted from the Bluetooth-enabled premium sound system, the 4Runner coddled its driver with refrigerated air directed at one's sweaty nether regions. Trying to get any useful information from the GPS, however, was another story. Our position was marked on an otherwise unbroken sea of blue, with no other details forthcoming — so if you plan on using it to navigate across country to escape the ravaging hordes, you may want to make sure a good old-fashioned map is part of your go-bag contents.



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A man with a beard, wearing a cap, sunglasses, a white t-shirt, a black tactical vest, and gloves. He is holding a radio to his mouth with his right hand and a handgun in his left hand. He has tattoos on both forearms.

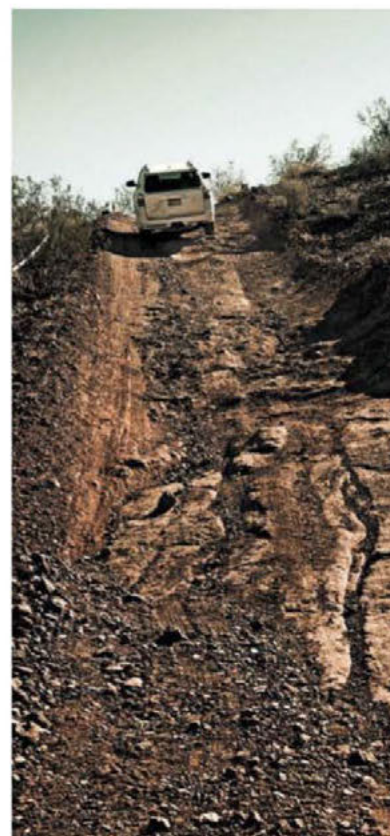
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Determined to prove that all this newfangled technology was bound to leave us stranded, we tried to make it malfunction by seeing just how big of a bow wave could be generated on a couple of water crossings. Although the vehicle emerged considerably cleaner, there was no noticeable change to its performance. It wasn't until we pushed hard through soft sand that the limitations of the 4Runner's styling accents were found — its air dam proved to be an inefficient snow plow and started flapping around after the third big hit.

After adding insult to injury by putting a ding in the tailgate, we decided to head home to consider lessons learned from the trip.

MALL CRAWLER AS BUG-OUT TRUCK

If your contingency plans hinge on using your SUV to escape from an impending apocalyptic event, there are a few things you should consider.

1. Expected terrain. If your prospective escape route takes you through mud-clogged back roads or an urban jungle,

you'll want to set up your rig a little differently than we did. Adapt your wagon to the prevailing conditions.

2. Overhangs and ground clearance are king. Our Limited version suffered due to its plastic front body panels, which hampered its off-road ability, while its lower-spec SR5 brother has no such handicap. Given the option of a two-wheel-drive vehicle, with good approach angles and ground clearance with a set of decent tires, versus a low-slung 4x4 — we'd take the 2WD version every time.

3. Traction control systems. They really do make a difference and compensate for the lack of locking differentials.

4. Reliability is everything. If our vehicles had crapped out on this test run, we'd either be sitting by the side of the trail for days waiting for a passing utility truck, or else hoofing it to someplace in range of a cell tower. In a more serious situation, neither of the above would apply, so it's vital that your vehicle is fit for its intended role. ■

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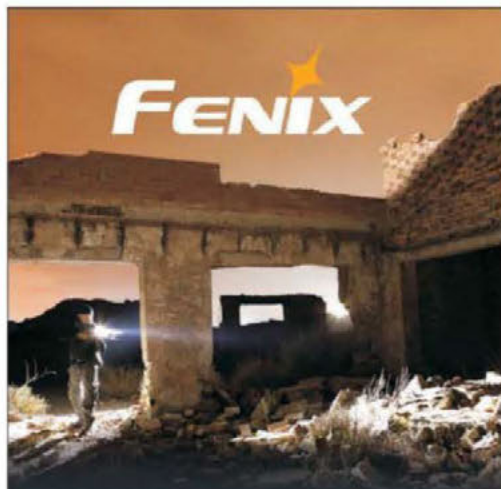
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1



2



3



4



5

1 MAKE:

Mil-Spec Monkey

PATCH:

Rock Out

COLORWAY:

ACU, arid, forest, SWAT (shown)

MSRP:

\$6

URL:

www.milspecmonkey.com/store/

2 MAKE:

Mil-Spec Monkey

PATCH:

Strategy

COLORWAY:

ACU dark, desert, forest, MultiCam, SWAT (shown), red

MSRP:

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URL:

www.milspecmonkey.com/store/

3 MAKE:

SKD Tactical

PATCH:

SKD Benghazi PVC Patch

COLORWAY:

Arid, black, red (shown)

MSRP:

\$5

URL:

www.skdtac.com

4 MAKE:

Mil-Spec Monkey

PATCH:

Jam Out

COLORWAY:

ACU (shown), arid, forest, SWAT

MSRP:

\$6

URL:

www.milspecmonkey.com/store/

5 MAKE:

SKD Tactical

PATCH:

SKD Fade Into Bolivian Patch

COLORWAY:

Arid, SWAT black (shown)

MSRP:

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URL:

www.skdtac.com

6 MAKE:

Mil-Spec Monkey

PATCH:

Basic Food Groups

COLORWAY:

ACU dark, ACU light (shown), desert, forest, MultiCam, SWAT

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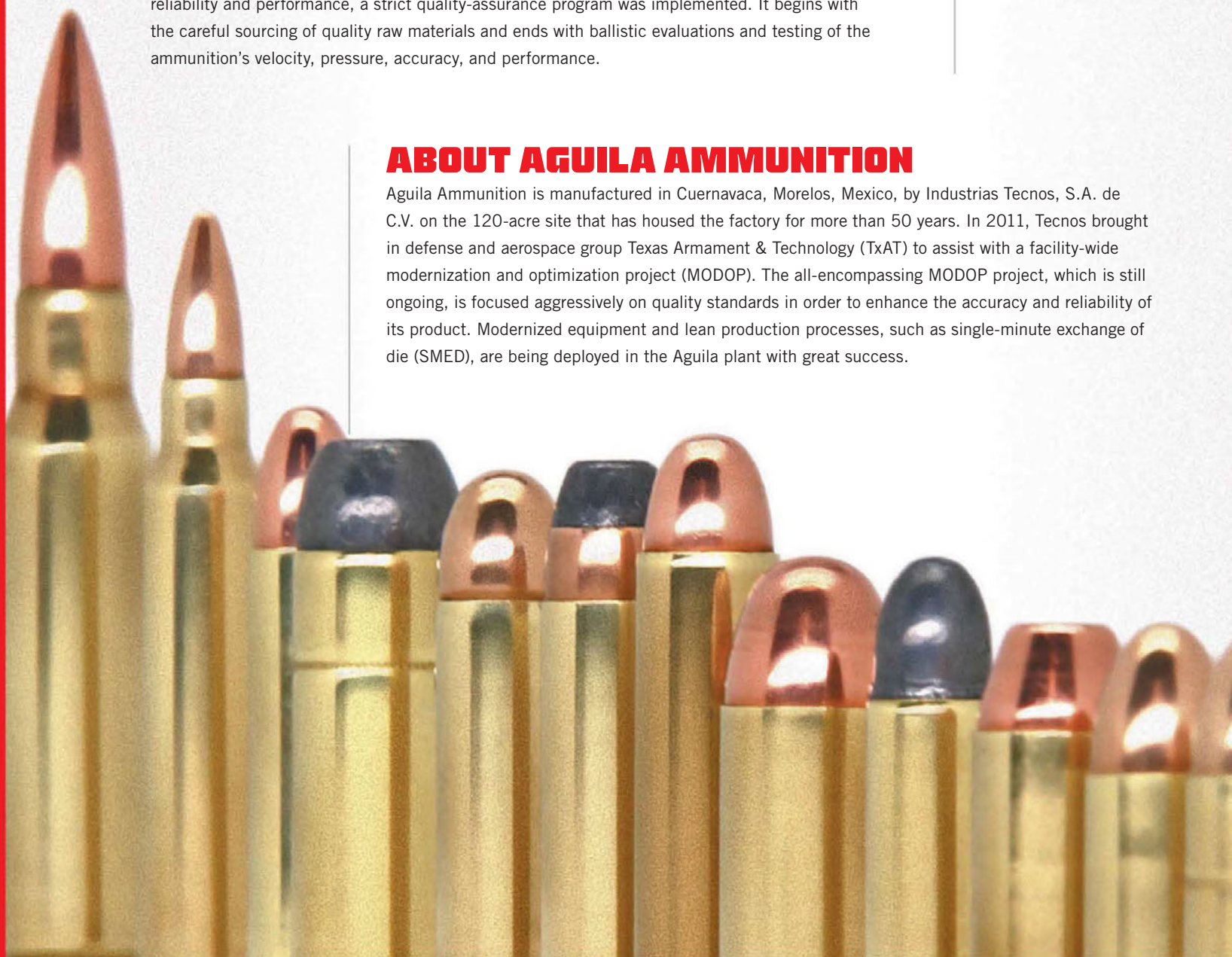
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7.62X51MM
FULL METAL JACKET
BOAT TAIL

PART NUMBER:
1E762110

BULLET WEIGHT:
150 grain

VELOCITY:

Muzzle: **2,750 ft/sec**
 100 Yards: **2,484 ft/sec**

ENERGY:

Muzzle: **2,519 ft/lb**
 100 Yards: **2,055 ft/lb**

*Barrel length as tested:
 24 inches*



.223 REMINGTON
FULL METAL JACKET

PART NUMBER:
1E223110

BULLET WEIGHT:
55 grain

VELOCITY:

Muzzle: **3,215 ft/sec**
 100 Yards: **2,473 ft/sec**

ENERGY:

Muzzle: **1,263 ft/lb**
 100 Yards: **747 ft/lb**

*Barrel length as tested:
 20 inches*



.30 CARBINE
FULL METAL JACKET

PART NUMBER:
1E302110

BULLET WEIGHT:
110 grain

VELOCITY:

Muzzle: **1,990 ft/sec**
 100 Yards: **1,451 ft/sec**

ENERGY:

Muzzle: **968 ft/lb**
 100 Yards: **515 ft/lb**

*Barrel length as tested:
 20 inches*



.32 S&W LONG
SOFT POINT

PART NUMBER:
1E322340

BULLET WEIGHT:
98 grain

VELOCITY:

Muzzle: **705 ft/sec**
 100 Yards: **639 ft/sec**

ENERGY:

Muzzle: **108 ft/lb**
 100 Yards: **88 ft/lb**

*Barrel length as tested:
 5.3 inches*



.380 AUTO
FULL METAL JACKET

PART NUMBER:
1E802110

BULLET WEIGHT:
95 grain

VELOCITY:

Muzzle: **945 ft/sec**
 100 Yards: **838 ft/sec**

ENERGY:

Muzzle: **188 ft/lb**
 100 Yards: **148 ft/lb**

*Barrel length as tested:
 3.74 inches*



.38 SPECIAL
FULL METAL JACKET

PART NUMBER:
1E382521

BULLET WEIGHT:
130 grain

VELOCITY:

Muzzle: **900 ft/sec**
 100 Yards: **804 ft/sec**

ENERGY:

Muzzle: **284 ft/lb**
 100 Yards: **227 ft/lb**

*Barrel length as tested:
 7.7 inches*



ANATOMY OF A CENTERFIRE CARTRIDGE

- 1. Primer:** Small charge that when struck by the firing pin ignites the propellant.
- 2. Case:** Cylinder typically made of brass that contains the bullet, primer, and propellant.
- 3. Propellant:** Powder that, when ignited by the primer, propels the bullet.
- 4. Bullet:** Projectile that is fired; weight normally listed in grains.



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PART NUMBER: 1E382520	PART NUMBER: 1E572823	PART NUMBER: 1E097704	PART NUMBER: 1E092110	PART NUMBER: 1E402110	PART NUMBER: 1E452110	PART NUMBER: 1E454319
BULLET WEIGHT: 158 grain	BULLET WEIGHT: 158 grain	BULLET WEIGHT: 115 grain	BULLET WEIGHT: 124 grain	BULLET WEIGHT: 180 grain	BULLET WEIGHT: 230 grain	BULLET WEIGHT: 200 grain
VELOCITY: Muzzle: 925 ft/sec 100 Yards: 823 ft/sec	VELOCITY: Muzzle: 1,545 ft/sec 100 Yards: 1,150 ft/sec	VELOCITY: Muzzle: 1,250 ft/sec 100 Yards: 1,006 ft/sec	VELOCITY: Muzzle: 1,115 ft/sec 100 Yards: 942 ft/sec	VELOCITY: Muzzle: 1,050 ft/sec 100 Yards: 907 ft/sec	VELOCITY: Muzzle: 830 ft/sec 100 Yards: 747 ft/sec	VELOCITY: Muzzle: 600 ft/sec 100 Yards: 544 ft/sec
ENERGY: Muzzle: 300 ft/lb 100 Yards: 238 ft/lb	ENERGY: Muzzle: 838 ft/lb 100 Yards: 464 ft/lb	ENERGY: Muzzle: 399 ft/lb 100 Yards: 258 ft/lb	ENERGY: Muzzle: 342 ft/lb 100 Yards: 245 ft/lb	ENERGY: Muzzle: 441 ft/lb 100 Yards: 329 ft/lb	ENERGY: Muzzle: 352 ft/lb 100 Yards: 285 ft/lb	ENERGY: Muzzle: 200 ft/lb 100 Yards: 164 ft/lb
Barrel length as tested: 7.7 inches	Barrel length as tested: 10 inches	Barrel length as tested: 4 inches	Barrel length as tested: 4 inches	Barrel length as tested: 4 inches	Barrel length as tested: 5 inches	Barrel length as tested: 5.3 inches



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Manufactured for perfection and performance, Aguila's rimfire ammunition uses ELEY technology — the same used by Olympic shooting teams — and clean combustible powders to offer maximum output at controlled pressures.

SHOTSHELL

Aguila's extensive shotshell line has something for everyone — whether the application is hunting, competition, clays, or home defense — from .410 to 12-gauge, and everything in between.

RIMFIRE AMMUNITION

SHOTSHELL AMMUNITION

							
.17	.22 LONG RIFLE COLIBRI LEAD BULLET	.22 LONG RIFLE HIGH VELOCITY HOLLOW POINT	.22 LONG RIFLE SUPER MAX HOLLOW POINT	.22 LONG RIFLE INTERCEPTOR HOLLOW POINT	.22 LONG RIFLE TARGET LEAD BULLET	12-GAUGE SKEET-TRAP	12-GAUGE MINISHELL SLUG
JACKETED SOFT POINT							
	PART NUMBER: 1B222337	PART NUMBER: 1B222335	PART NUMBER: 1B222297	PART NUMBER: 1B222321	PART NUMBER: 1B222514	PART NUMBER: 1CHB1254	PART NUMBER: 1C128974
BULLET WEIGHT: 20 grain	BULLET WEIGHT: 20 grain	BULLET WEIGHT: 38 grain	BULLET WEIGHT: 30 grain	BULLET WEIGHT: 40 grain	BULLET WEIGHT: 40 grain	POWDER LOAD: Skeet: Extra-Dura 2¾ Dram Equivalent	POWDER LOAD: 2½ Dram Equivalent
VELOCITY: Muzzle: 1,850 ft/sec 100 Yards: 1,267 ft/sec	VELOCITY: Muzzle: 420 ft/sec 100 Yards: 376 ft/sec	VELOCITY: Muzzle: 1,280 ft/sec 100 Yards: 1,046 ft/sec	VELOCITY: Muzzle: 1,700 ft/sec 100 Yards: 1,290 ft/sec	VELOCITY: Muzzle: 1,470 ft/sec 100 Yards: 1,130 ft/sec	VELOCITY: Muzzle: 1,080 ft/sec 100 Yards: 951 ft/sec	LENGTH: 2¾ inches	LENGTH: 1¾ inches
ENERGY: Muzzle: 136.5 ft/lb 100 Yards: 62.2 ft/lb	ENERGY: Muzzle: 8 ft/lb 100 Yards: 6 ft/lb	ENERGY: Muzzle: 138 ft/lb 100 Yards: 92 ft/lb	ENERGY: Muzzle: 193 ft/lb 100 Yards: 111 ft/lb	ENERGY: Muzzle: 192 ft/lb 100 Yards: 113 ft/lb	ENERGY: Muzzle: 104 ft/lb 100 Yards: 80 ft/lb	LOAD: 1½ ounces	LOAD: ⅞ ounces
						SHOT SIZE: 9	SHOT SIZE: Slug
						VELOCITY: 1,350 ft/sec	VELOCITY: 1,250 ft/sec



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MODEL: Amber Dale
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PHOTOGRAPHER: Jorge Nuñez
HAIR & MAKEUP: Liza Macawili Ramos

RIFLE

Daniel Defense V11 (Tornado)

SIGHTS

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Daniel Defense Fixed Front/Rear Sight Combo

MAGAZINE

Magpul PMAG 30 AR/M4 GEN M3 5.56x45mm

» DanielDefense.com/ar-experience



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